REF
QK1
.M833
V.112
2007 c.3

ICONES PLEUROTHALLIDINARUM
XXIX

A THIRD CENTURY OF STELIS OF ECUADOR

* * *

SYSTEMATICS OF APODA-PROREPENTIA

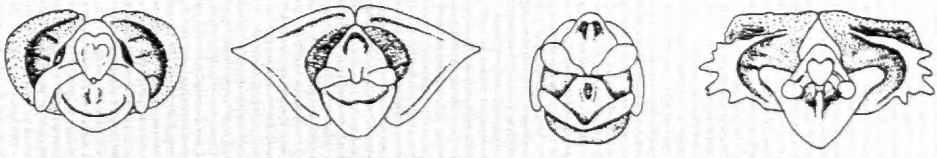
* * *

SYSTEMATICS OF MISCELLANEOUS SMALL GENERA

ADDENDA: NEW GENERA, SPECIES, AND COMBINATIONS

(Orchidaceae)

Carlyle A. Luer



Missouri Botanical Garden

vol. 112

REF
QK1
.M833
2007
v.112
c.3

ICONES PLEUROTHALLIDINARUM
XXIX

A THIRD CENTURY OF
STELIS
OF ECUADOR

* * *

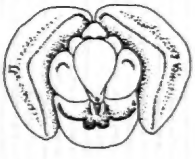
SYSTEMATICS
OF
APODA-PROREPENTIA

* * *

SYSTEMATICS OF MISCELLANEOUS SMALL GENERA
ADDENDA: NEW GENERA, SPECIES, AND COMBINATIONS

(Orchidaceae)

Carlyle A. Luer



Missouri Botanical Garden

Missouri Botanical
Garden Library

MONOGRAPHS IN SYSTEMATIC BOTANY
FROM THE MISSOURI BOTANICAL GARDEN

Volume 112

Published in August 2007 in an edition of 500 copies.
Effective date of publication of Volume 105 is 21 July 2006.

ISSN 0161-1542
ISBN 978-1-930723-63-4

Carlyle A. Luer
3222 Old Oak Drive
Sarasota, FL 34239-5019

EDITOR
Victoria C. Hollowell

MANAGING EDITOR
Beth Parada

ASSOCIATE EDITOR
Diana Gunter

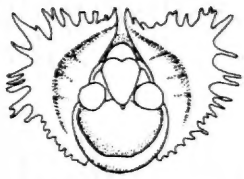
EDITORIAL ASSISTANT
Barbara Mack

MBG PRESS ASSISTANT
Monica Anderson

Copyright (c) 2007 by Missouri Botanical Garden Press
All rights reserved
Printed in the U.S.A. by Coastal Printing, Inc.,
Sarasota, FL
Composed at 3222 Old Oak Drive, Sarasota, Florida 34239
with WordStar 7.0
Typeset with Hewlett Packard LaserJet 2100M

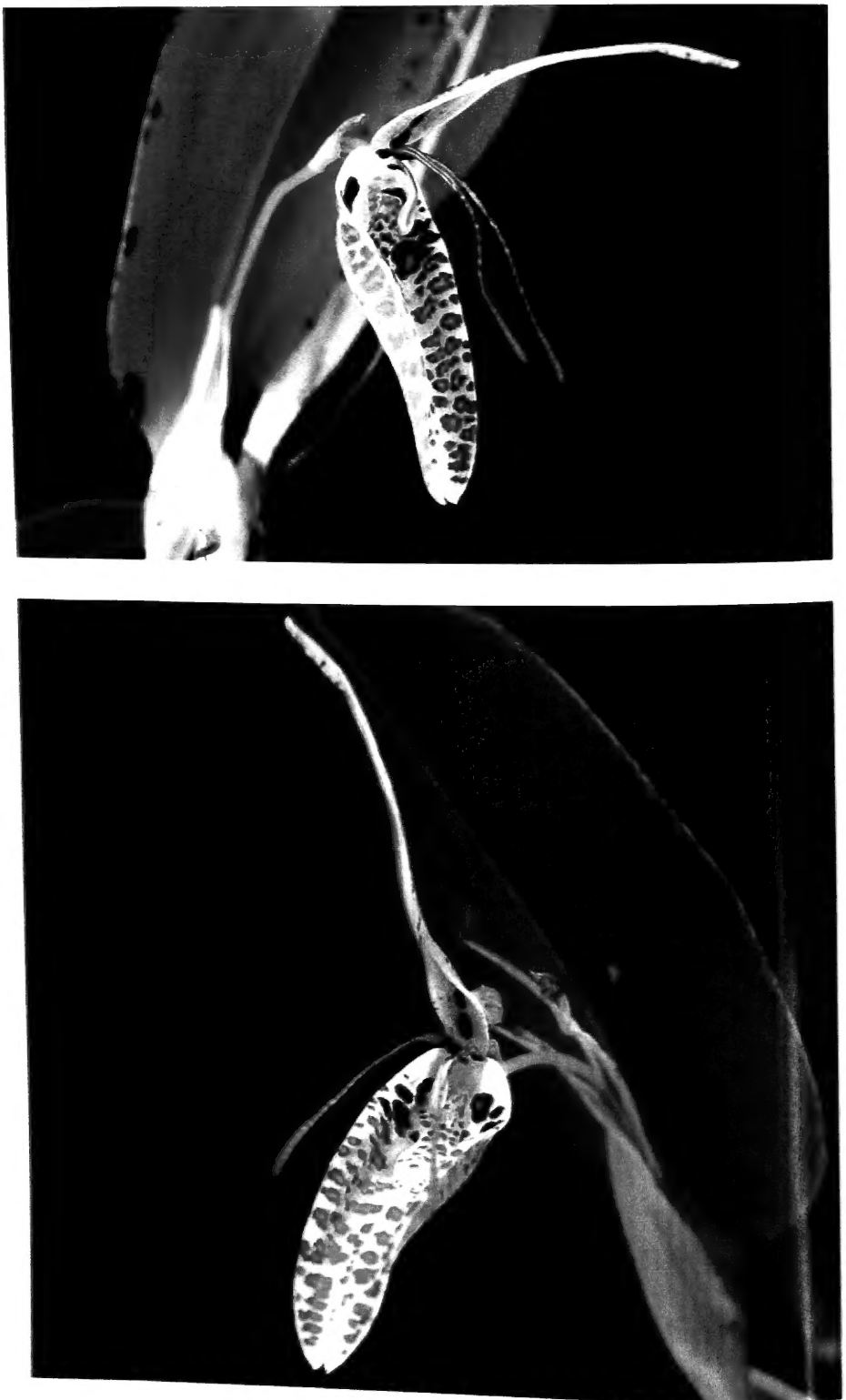
Copies of this book are available through
Missouri Botanical Garden
MBG Press Orders
P.O. Box 299
St. Louis, MO 63166-0299, U.S.A.
http://www.mbgpress.org

Orders: mbgpress@mobot.org



CONTENTS

A third century of new species of *Stelis* of Ecuador, a review.....1-2
List of species.....3
New species of section *Nexipous*.....4-9
New species of section *Humboldtia*.....10-15
New species of section *Stelis*.....16-80
Index to new species of *Stelis*.....81-82
Systematics of *Apoda-Prorepentia*.....83-93
Miscellaneous small pleurothallid genera not previously treated.....94-105
Systematics of the genus *Cucumeria*.....94
Systematics of the genus *Empusella*.....95
Systematics of the genus *Myrandopsis*.....96
Systematics of the genus *Mixis*.....97
Systematics of the genus *Mystacorchis*.....97
Systematics of the genus *Physosiphon*.....98
Systematics of the genus *Physothallis*.....101
Systematics of the genus *Pseudoctomeria*.....102
Addenda: Miscellaneous new genera, species and combinations.....106-121
1. New genera.....106-107
2. New species.....108-114
3. New species of *Lepanthes* of Ecuador.....115-117
4. New combinations.....118-121
5. New species and a new combination in *Masdevallia* and affiliates.....122-130



Restrepia fritillina Luer & V.N.M.Rao, obtained from Ecuagenera, Gualaceo, Ecuador; cultivated and photographed by Malli Rao, May 2007, in Wilmington, Delaware, U.S.A.

A THIRD CENTURY OF NEW SPECIES OF *STELIS* SW. OF ECUADOR

Organizing the genus *Stelis* into a single treatment would be overwhelming, not only for the author, but also for anyone attempting to consult it. At this moment of writing, 1201 names have been attributed to the genus, but that number includes 197 species (including 27 homonyms) of several other pleurothallid genera recently transferred to *Stelis* (Pridgeon & M.W.Chase, 2001). Because of fundamental differences in morphology of sepals, petals, lips, columns, anthers, and stigmas, these transfers are excluded from the treatment of the genus. Taxonomy is the logical, ongoing science of classification and identification that should not be arbitrarily set aside because of similarities of DNA regions.

Excluding the above transfers, the number of species presently attributed to *Stelis* is about 1000, but possibly fewer than 900 are accepted. This total will soar when the vast numbers of indeterminate collections and collections yet to be made are identified. Species are frequent and widely scattered at various altitudes from southern Mexico to northern Argentina. In pleurothallids the number of published species is second only to *Pleurothallis*, but since numerous genera have been carved from *Pleurothallis*, *Stelis* is the undisputed leader. Old *Pleurothallis* with its numerous included taxa begging to be recognized was exceedingly polymorphic, but the morphology of the species of *Stelis* is comparatively stable which allows easier identification of the vast majority of species, while precluding division into smaller taxa.

Although vegetatively diverse, the species of *Stelis* are florally distinct. In common, the petals, lip and column form a small, compact, central apparatus with the column and anther upper center, the lip lower center, and all neatly embraced by a pair of petals, one on either side. The petals of all the species are short and about as long as the column; the lips of all the species are also short and usually intricately sculptured; and the column of all the species is short and broad with an apical anther and an apical stigma that is most commonly bilobed.

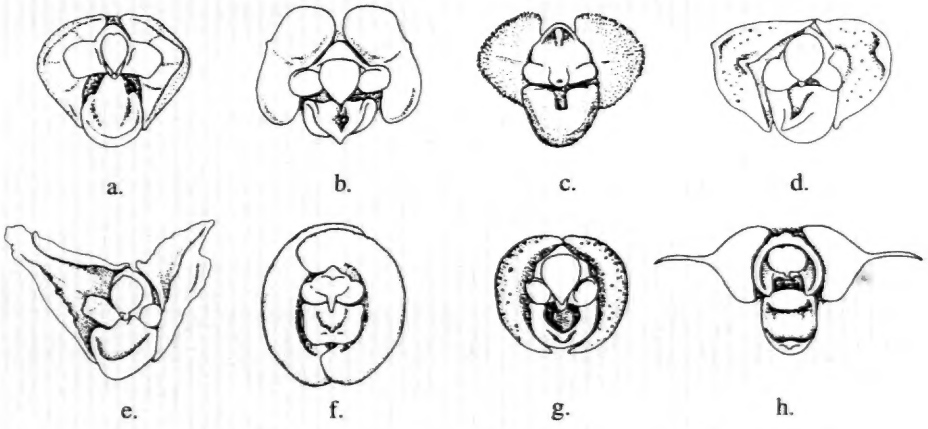


Fig. 1. Variations in the central apparatus: a. *Stelis nambijae*, b. *S. reniformis*, c. *S. ciliatissima*, d. *S. corniculata*, e. *S. nycterina*, f. *S. listrophylla*, g. *S. scaphoglossa*, h. *S. barbellata*.
Cover: From left to right: *S. brachiata, S. vollesii, S. scaleria, S. florianii*. **Title page**: *S. dirigens*

The most logical alternative to a single, comprehensive treatment of *Stelis* is a series of regional treatments. The largest number of known species is from the region within the boundaries of Ecuador, but that is because Ecuador has been the most intensively studied (Luer, 2002; Luer, 2004). After the similar amount of time and effort have been expended in neighboring Colombia and Peru, Ecuador may drop to third in numbers of species, because both these neighbors are more than four times larger in geographic area. However, smaller Ecuador has the advantage of straddling the equator, as well as the Andes with its varied habitats on both eastern and western slopes.

In 1921, Schlechter published a list of 79 species of *Stelis* reported from Ecuador. About 43 of these species are presently accepted, the remainder being misidentified, erroneously attributed to Ecuador, or represented by synonymous names. About 80 additional species known from other regions have now been identified as inhabitants of Ecuador as well. With the 95 new species from Part One of new species of *Stelis* of Ecuador, the 105 new species from Part Two, and the present 100 new species for Part Three, the total number of newly recognized species in Ecuador is now 300. The final lot of about 130 previously known species, and the new species that will have been subsequently identified, will comprise Part Four along with the systematics of the genus in Ecuador. This will bring the total number of accepted species known from Ecuador to nearly 500, or over half the number of species presently known. Similar numbers can be anticipated for neighboring Colombia and Peru, possibly doubling the number of species now known.

As in the preceding two parts in the treatment of *Stelis*, the new species are presented alphabetically in three artificial sections, groups of more or less allied species with some similarities to aid in orientation and identification. The sections *Bilabiatae* and *Stelis* used in the first two parts are combined, because their defining features have proved to be indistinct, with too many species becoming intermediate. For a complete discussion of the terminology used in the description, refer to Part One of *Icones Pleurothallidinarum XXIV,* but briefly, the following:

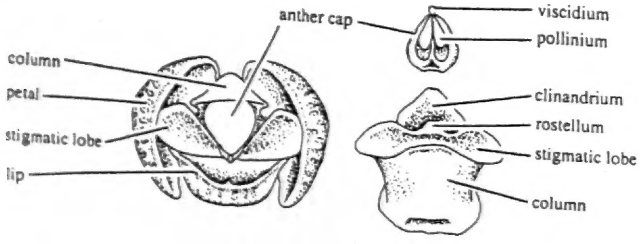


Fig. 2. The central aparatus and column

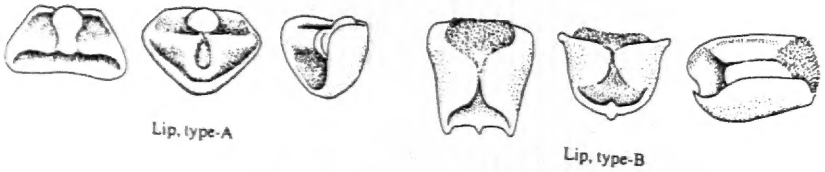


Fig. 3. The two major types of labellum.

NEW SPECIES

Section **Nexipous**
Fig. 206. **Stelis encephalota** Luer & Hirtz
Fig. 207. **Stelis laudabilis** Luer & Hirtz
Fig. 208. **Stelis lynniana** Luer
Fig. 209. **Stelis mnemonica** Luer & Hirtz
Fig. 210. **Stelis orecta** Luer & Hirtz
Fig. 211. **Stelis pactensis** Luer & Hirtz
Fig. 212. **Stelis picea** Luer & Hirtz
Fig. 213. **Stelis uncifera** Luer & Hirtz

Section **Humboldtia**
Fig. 214. **Stelis bucculenta** Luer & Hirtz
Fig. 215. **Stelis glossulicles** Luer & Hirtz
Fig. 216. **Stelis inflata** Luer
Fig. 217. **Stelis lapoi** Luer & Hirtz
Fig. 218. **Stelis nigrescens** Luer & Hirtz
Fig. 219. **Stelis pelycophora** Luer & Hirtz
Fig. 220. **Stelis sparsiflora** Luer & Hirtz
Fig. 221. **Stelis strobilacea** Luer

Section **Stelis** including Section **Labiatae**
Fig. 222. **Stelis abbreviata** Luer & Hirtz
Fig. 223. **Stelis adinostachya** Luer & Hirtz
Fig. 224. **Stelis aliquantula** Luer & Hirtz
Fig. 225. **Stelis amabilis** Luer & Hirtz
Fig. 226. **Stelis anderssonii** Luer & Endara
Fig. 227. **Stelis aphidifera** Luer & Dalström
Fig. 228. **Stelis asplundii** Luer & Endara
Fig. 229. **Stelis atrocaerulea** Luer
Fig. 230. **Stelis barbimentosa** Luer & Endara
Fig. 231. **Stelis brevissimicaudata** Luer & Hirtz
Fig. 232. **Stelis carchica** Luer & Hirtz
Fig. 233. **Stelis cavernula** Luer & Dalström
Fig. 234. **Stelis celsa** Luer & Hirtz
Fig. 235. **Stelis coleata** Luer & Hirtz
Fig. 236. **Stelis copiosa** Luer & Hirtz
Fig. 236a. **Stelis copiosa** Luer & Hirtz
Fig. 237. **Stelis coracina** Luer & Hirtz
Fig. 238. **Stelis creodantha** Luer & Hirtz
Fig. 239. **Stelis crinita** Luer & Hirtz
Fig. 240. **Stelis crossota** Luer & Hirtz
Fig. 241. **Stelis cryophila** Luer & Hirtz
Fig. 242. **Stelis cryptopetala** Luer & Hirtz
Fig. 243. **Stelis delicata** Luer & Hirtz
Fig. 244. **Stelis dimidiata** Luer & Hirtz
Fig. 245. **Stelis dissimulans** Luer & Dodson
Fig. 246. **Stelis diversifolia** Luer & Hirtz
Fig. 246a. **Stelis diversifolia** Luer & Hirtz
Fig. 247. **Stelis dolichantha** Luer & Hirtz
Fig. 248. **Stelis drewii** Luer & Endara
Fig. 249. **Stelis elatissima** Luer & Hirtz
Fig. 250. **Stelis entrichota** Luer & Hirtz
Fig. 251. **Stelis eumeces** Luer & Hirtz
Fig. 252. **Stelis eustylis** Luer & Hirtz
Fig. 253. **Stelis graminosa** Luer & Hirtz
Fig. 254. **Stelis hymenopetala** Luer & Endara
Fig. 255. **Stelis janus** Luer & Hirtz
Fig. 256. **Stelis lacunata** Luer & Endara
Fig. 257. **Stelis lepidella** Luer & Hirtz
Fig. 258. **Stelis levicula** Luer
Fig. 259. **Stelis lilliputana** Luer & F.Werner
Fig. 260. **Stelis limbata** Luer & Hirtz
Fig. 261. **Stelis litensis** Luer & Hirtz
Fig. 262. **Stelis lorenae** Luer
Fig. 263. **Stelis madsenii** Luer & Endara
Fig. 264. **Stelis mammillata** Luer & Hirtz
Fig. 265. **Stelis micropetala** Luer & Hirtz
Fig. 266. **Stelis milagrensis** Luer & Hirtz
Fig. 267. **Stelis misera** Luer & Hirtz
Fig. 268. **Stelis molaui** Luer & Endara
Fig. 269. **Stelis monicae** Luer & Hirtz
Fig. 270. **Stelis moniligera** Luer & Hirtz
Fig. 271. **Stelis nikiae** Luer & Hirtz
Fig. 272. **Stelis ninguida** Luer & Dalström
Fig. 273. **Stelis obtecta** Luer & Dalström
Fig. 274. **Stelis ophioceps** Luer & Hirtz
Fig. 275. **Stelis orbiculata** Luer & Endara
Fig. 276. **Stelis panguiensis** Luer & Hirtz
Fig. 277. **Stelis paradisicola** Luer & Hirtz
Fig. 278. **Stelis paulula** Luer & H.P.Jesup
Fig. 279. **Stelis pluriracemosa** Luer & Hirtz
Fig. 280. **Stelis prolificosa** Luer & Hirtz
Fig. 281. **Stelis protuberans** Luer & Hirtz
Fig. 282. **Stelis ramificans** Luer & Endara
Fig. 283. **Stelis riozunagensis** Luer & Hirtz
Fig. 284. **Stelis satyrica** Luer & Hirtz
Fig. 285. **Stelis scaberula** Luer & Hirtz
Fig. 286. **Stelis scitula** Luer & Hirtz
Fig. 287. **Stelis septicola** Luer & Endara
Fig. 288. **Stelis similis** Luer & Hirtz
Fig. 289. **Stelis soricina** Luer & Hirtz
Fig. 290. **Stelis sororcula** Luer & Hirtz
Fig. 291. **Stelis stormii** Luer & Endara
Fig. 292. **Stelis strictissima** Luer & Hirtz
Fig. 293. **Stelis supervivens** Luer & Hirtz
Fig. 294. **Stelis tanythrix** Luer & Hirtz
Fig. 295. **Stelis tetramera** Luer
Fig. 296. **Stelis thamiostachya** Luer & Endara
Fig. 297. **Stelis thermatica** Luer & Dodson
Fig. 298. **Stelis translucens** Luer & Hirtz
Fig. 299. **Stelis trichoglottis** Luer & Dodson
Fig. 300. **Stelis tricula** Luer & Hirtz
Fig. 301. **Stelis triplex** Luer & Hirtz
Fig. 302. **Stelis tropex** Luer & Endara
Fig. 303. **Stelis umbonis** Luer & Hirtz
Fig. 304. **Stelis uniflora** Luer & Hirtz
Fig. 305. **Stelis wilhelmii** Luer
Fig. 306. **Stelis zamorae** Luer & Hirtz

Section **NEXIPOUS**

206. **Stelis encephalota** Luer & Hirtz, sp. nov.

Ety.: From the Greek *encephalotos*, "like a brain," referring to the uppermost, spherical synsepal.

Planta grandis caespitosa, ramicaulibus quam foliis ellipticis petiolatis subaequilongis, racemo subdenso breviore, sepalo dorsali profunde concavo orbiculato, sepalis lateralibus minoribus ellipticis recurvis, petalis transversis crassis reniformibus et labello minuto oblongo unicalloso distinguitur.

Plant large, epiphytic, caespitose, roots slender. Ramicauls erect, stout, 15-18 cm long, the middle half enclosed by a tubular sheath from below the middle, and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical, tips missing, estimated 15 cm long including a petiole 2-2.5 cm long, 3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subdensely many-flowered raceme, with many flowers open simultaneously, 12 cm long including the peduncle 2-2.5 cm long, subtended by a spathe 1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 6 mm long; pedicels 2.5 mm long; ovary 4 mm long; **sepals** creamy white, the dorsal sepal glabrous, greatly inflated, spherical, the aperture rounded, 9-10 mm long and wide, 9-veined, connate 2 mm basally to the laterals, the lateral sepals pubescent, elliptical, subacute, recurved, 6.5 mm long, 3 mm wide, 3-veined; **petals** purple, thick, transversely reniform, with a broad margin, rounded apex, concave basally, 1 mm long, 1.4 mm wide, 3-veined; **lip** purple, oblong, 1 mm long, 0.6 mm wide, 0.6 mm deep, shallowly concave anteriorly with a round apex, the bar thick with a central callus, the dorsum pubescent toward the base, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.4 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Zamora-Chinchipe: probably above Zumba, alt. 1500 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 27 July 2004, *A. Hirtz 8959* (Holotype: MO), C. Luer illustr. 20836.

This strange species is known only from the original collection in southernmost Ecuador. It is characterized by a stout ramicaul and a crowded raceme shorter than the leaf. The most distinctive flower is composed of a large, spherical dorsal sepal with the smaller lateral sepals recurving from below the rounded entrance to the interior. The small central apparatus is situated on the floor of the sphere. The petals are thickly reniform, and the tiny, oblong lip has a central, rounded callus.

207. **Stelis laudabilis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *laudabilis*, "praiseworthy," referring to laudable aspects of the plant.

Species haec *Stelidis juninensis* Kraenzl. affinis sed folio oblongo obtuso petiolato racemis arcuatis longiore, sepalis ovatis acutis incurvis ad basim in cupulam protuberantam connatis, et labello suboblongo obtuso ad dorsum breviter pubescentibus differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 8-12 cm long, enclosed by a loose, tubular sheath on the middle third and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, oblong, obtuse, petiolate, 10-12 cm long including the petiole 1.5 cm long, 2-2.3 cm wide, cuneate below into the petiole. **Inflorescence** 1 to 2 suberect, more or less arching, congested, more or less simultaneously multiflowered raceme with many flowers open simultaneously, 7-8 cm long including the peduncle ca. 0.5 cm long, subtended by a slender spathe 15 mm long, from an annulus below the apex of the ramicaul; floral bracts tubular, oblique, subacute, 3 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** light green, rigid, fleshy, glabrous, ovate, acute, connate basally over a convex circle surrounding the central apparatus, the dorsal sepal 3 mm long, 2 mm wide, 3-veined, the lateral sepals incurved, 2.5 mm long, 2 mm wide, 3-veined; **petals** green with a brown, central stripe, transversely ovate, 0.75 mm long, 1.3 mm wide, 3-veined, the apex thick, broadly rounded, irregular, concave at the base; **lip** purple-black, suboblong, 0.8 mm long, 0.5 mm wide, 0.3 mm deep, the apex triangular, obtuse, shallowly concave, the bar with a central concavity, the dorsum flat, minutely short-pubescent toward the base, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long and wide, the stigmatic lobes protuberant laterally, the foot obsolescent, the anther and the stigma apical.

Morona-Santiago: collected near Macas and cultivated by Eduardo Sánchez in Cuenca, flowered in cultivation, 26 July 2004, *A. Hirtz 8957* (Holotype: MO), C. Luer illustr. 20919.

This species from the eastern slope of the Andes of southeastern Ecuador is related to sympatric *Stelis juninensis* Kraenzl. It is distinguished from the latter as well as from other species in section *Nexipous* by a protuberance formed by the bases of the sepals. As in *S. juninensis*, the sepals are acute at the apex; the petals are thick with an irregular surface and a depression to accommodate the spreading stigmatic lobes from the column; and the oblong, obtuse lip is pubescent on the dorsum.

208. **Stelis lynniana** Luer, sp. nov.

Ety.: Named for Lynn O'Shaughnessy of Howell, MI, who successfully cultivates this species.

Planta mediocris caespitosa, folio anguste ellipticis petiolatis caule longiore, racemo congesto folio plus minusve aequilongo, sepalis glabrous, sepalo dorsali late elliptico quam lateralibus triangularibus subacutis majore, petalis lunatis, et labello subcuneato acuto cum glenio protuberanti distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-8 cm long, enclosed by a tubular sheath from below the middle and 2 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 10-13 cm long including the petiole 1.5-3 cm long, 1.3-1.8 cm wide, cuneate below into the slender petiole. **Inflorescence** a congested, distichous, many-flowered raceme with many flowers open simultaneously in opposite facing ranks, 7-13 cm long including the peduncle less than 1 cm long, with a spathe 7-9 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 4-5 mm long; pedicels curved, 2 mm long; ovary 1.5 mm long; **sepals** glabrous, dark purple, the dosal sepal broadly elliptical, obtuse, 6.5-8 mm long, 5 mm wide, 3-(incompletely 5-) veined, connate to the lateral sepals 1.5 mm, the lateral sepals held forward, triangular, subacute, 5-6 mm long, 2.5-3 mm wide, 3-veined; **petals** transversely lunate, the broadly rounded margin thickened and longitudinally concave, 0.6 mm long, 1 mm wide, 1-veined; **lip** cuneate, 0.6 mm long, 0.6 mm wide, 0.4 mm deep, shallowly concave anteriorly within the acute, triangular apical portion, the bar thick with a protruding, minutely bilobed glenion, the dorsum flat, quadrate, densely but minutely pubescent below the middle, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.6 mm long, 0.6 mm wide, with the anther cap large and minutely papillose, the stigmatic lobes very small.

Without collection data, obtained from Ecuagenera, Gualaceo, flowered in cultivation, Oct. 2003, in Howell, MI, by *Lynn O'Shaughnessy 02856* (Holotype: MO), C. Luer illustr. 20530; without collection data, flowered in cultivation, Jan. 2004, at Ecuagenera, Gualaceo, *A. Hirtz 8620* (MO), C. Luer illustr. 20849.

This species, probably from southern Ecuador, is most similar to *Stelis picea* Luer & Hirtz described below. *Stelis lynniana* is characterized by a narrowly elliptical leaf that is more or less equalled in length by a crowded raceme of overlapping, opposite-facing, purplish flowers. The broadly elliptical dorsal sepal is larger than the combined, triangular, lateral sepals. The petals are obscurely single-veined with the margin broad and longitudinally concave. The lip is cuneate with a shallowly concave, acute apex, and a protruding glenion on the margin of the bar.

209. **Stelis mnemonica** Luer & Hirtz, sp. nov.

Ety.: From the Greek *mnemonikos*, "of memory," referring to the similarity to other species.

Planta mediocris grandisve caespitosa, racemo multifloro secundo congesto folio angusto elliptico excedenti, sepalis oblongo-ellipticis late expansis quasi liberis, petalis lunatis, et labello oblongo apice acuto distinguitur.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 11 cm long, enclosed by a loose, tubular sheath from near the middle and another 1-2 sheaths from near the base. **Leaf** erect, coriaceous, narrowly elliptical, obtuse, 14 cm long including a petiole ca. 2 cm long, the blade 2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, strict, densely congested, secund, simultaneously many-flowered raceme, to 15 cm long including the peduncle ca. 2 cm long, from an annulus below the apex of the ramicaul, with a spathe 15 mm long; floral bracts oblique, acute, 3 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** cream with a broad, tan-brown central stripe, widely expanded and recurved, glabrous, broadly elliptical-oblong, obtuse, connate basally to form a cup for the central apparatus, the dorsal sepal 7 mm long, 3.3 mm wide, 3-veined, the lateral sepals 6 mm long, 3.3 mm wide, 3-veined; **petals** tan-lavender, transversely lunate, broadly rounded at the apex with a broad margin, shallowly concave below, 0.8 mm long, 1.3 mm wide, 3-veined; **lip** tan-lavender, oblong, acute, 1 mm long, 0.5 mm wide, 0.4 mm deep, shallowly concave before the bar, the dorsum minutely pubescent near the base, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: near Chigüinda, alt. 1800 m, collected and cultivated at Ecuagenera, Gualaceo, flowered in cultivation 2 May 2004, *A. Hirtz 8729* (Holotype: MO), C. Luer 20852.

This species with widely expanded, similar, nearly free, elliptical-oblong sepals is reminiscent of several others, including *Stelis fabulosa* Luer & Endara and *S. tridactylon* Luer. The flowers are borne on a many-flowered raceme as long as or longer than a narrowly elliptical leaf. The petals have a broad, flat margin, and the lip is oblong and acute.

210. **Stelis orecta** Luer & Hirtz, sp. nov.

Ety.: From the Greek *orektos*, "spread out," referring to the lateral sepals.

Species haec *Stelidis apertae* Garay persimilis, sed sepalis lateralibus 180° expansis ovatis subacutis apiculatis, ad sepalum dorsale breviter connatis differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 6-12 cm long, enclosed by a loose, tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to obtuse, petiolate, 10 cm long, 1 cm wide in the dried state, contracted below into a petiole ca. 1 cm long. **Inflorescence** 2 simultaneous, erect, congested, distichous, many-flowered raceme with several flowers open simultaneously, to 20 cm long including the peduncle ca. 1 cm long, subtended by a spathe 1.3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 4-5 mm long; pedicels 2-3 mm long; ovary 2-4 mm long; **sepals** light green, glabrous, microscopically sparsely ciliate, the dorsal sepal ovate, subacute, 4 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals expanded, obliquely ovate, subacute, with a short, thick apiculum at the tip, 4.5 mm long, 2.5 mm wide, 3-veined, connate to each other for ca. 0.5 mm; **petals** rose, transversely oblong with round ends, 0.55 mm long, 0.8 mm wide, 1-veined, broadly rounded at the apex, shallowly concave; **lip** purple, erect, suborbicular, 1.6 mm long, 1.6 mm wide, 0.5 mm deep, the apex rounded, thickened, shallowly concave centrally, with a pair of erect, lamellae below the middle, channeled between, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: collected near Chigüinda, alt. 2200 m, flowered in cultivation at Ecuagenera, Gualaceo, 10 Nov. 2001, *A. Hirtz 7874* (Holotype: MO), C. Luer illustr. 20953.

This species is similar to *Stelis aperta* with which it is sympatric in southeastern Ecuador. It is indistinguishable vegetatively, but the flowers appear distinct. The sepals are narrower and subacute with the dorsal sepal connate only about a quarter its length to the lateral sepals instead of half its length. The lateral sepals spread 180° instead of obliquely upward. The tips are contracted into short, thick apicula, instead of simply obtuse. The lips are similar, but the central calli are separated by a channel.

211. **Stelis pactensis** Luer & Hirtz, sp. nov.

Ety.: Named for the community of Pacto, near where this species was collected.

Species haec *Stelidis juninensis* Kraenzl. affinis, sed habitu minore, folio anguste ovato petiolato, sepalis minute pubescentibus obtusis incurvis ad basim in cupulam connatis, et labello subquadrato obtuso ad dorsum ecalloso differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-8 cm long, enclosed by a loose, spotted, tubular sheath on the middle third and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly ovate, acute, petiolate, 6-8.5 cm long including the petiole 8-13 mm long, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, subdense, successively multiflowered raceme with many flowers open simultaneously, 12-16 cm long including the peduncle ca. 5 cm long, subtended by a slender spathe 6-7 mm long, from an annulus below the apex of the ramicaul; floral bracts tubular, oblique, acute, 5-6 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** minutely pubescent, purple-black externally, purple with olive hue within, connate basally, concave basally to form a shallow cup for the central apparatus, the dorsal sepal broadly elliptical, broadly obtuse to round at the apex, 5 mm long, 4 mm wide, 3-veined, the lateral sepals incurved, ovate, oblique, obtuse, 4.5 mm long, 4.25 mm wide, 3-veined; **petals** purple-black, thick, transversely lunate, 0.8 mm long, 1.5 mm wide, 3-veined, the apex broadly rounded, irregular, concave at the base; **lip** purple-black, subquadrate, 1 mm long, 1 mm wide, 0.5 mm deep, the apex triangular, obtuse, concave, the bar with an elevated, superficial glenion, the dorsum flat to shallowly concave, minutely pubescent toward the base, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the stigmatic lobes protuberant laterally, the foot obsolescent, the anther and the stigma apical.

Pichincha: between Pacto and Bancos, alt. 1700 m, Aug. 2004, *A. Hirtz 8988* (Holotype: MO), C. Luer illustr. 20899.

This species from the western slope of the Andes of Pichincha is related to *Stelis juninensis* from the eastern slopes of southern Ecuador and Peru. It is distinguished by purple-black, obtuse sepals that are concave basally into a shallow cup for the petals, lip and column. The petals of both species are large and fleshy. The lip of *S. pactensis* is obtuse instead of acute, and the dorsum is flat and shallowly concave.

212. **Stelis picea** Luer & Hirtz, sp. nov.

Ety.: From the Latin *piceus*, "pitch black," referring to the flowers.

Planta mediocris caespitosa, folio anguste ellipticis petiolatis cauli longiore, racemo congesto folio longiore, floribus piceis, sepalis glabrous, sepalo dorsali late elliptico quam lateralibus ovatis obtusis majore, petalis transversis subquadratis, et labello subcuneato acuto distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 6-8 cm long, enclosed by a tubular sheath from below the middle and 2 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 12-13 cm long including the petiole ca. 2 cm long, 1.5-1.8 cm wide, cuneate below into the slender petiole. **Inflorescence** a congested, many-flowered raceme with many flowers open simultaneously, to 17 cm long including the peduncle ca. 2 cm long, with a spathe 1.2-1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 4 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** purple-black, glabrous, the dosal sepal broadly elliptical, round at the apex, 7 mm long, 5.5 mm wide, 5-veined, connate to the lateral sepals 2 mm, the lateral sepals ovate, round at the apex, 5 mm long, 3.5 mm wide, 3-veined; **petals** black, transversely subquadrate with thickened, oblique margins, shallowly concave, 0.6 mm long, 1 mm wide, 1-veined; **lip** black, cuneate, 0.6 mm long, 0.5 mm wide, 0.5 mm deep, shallowly concave anteriorly within the acute, apical margin, the bar thick with a glenion, the dorsum flat, minutely pubescent below the middle, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long, 0.5 mm wide, with the anther and bilobed stigma apical.

Zamora-Chinchipe: Cordillera del Condor, near Paquisha, alt. 1400 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 11 Jan. 2004, *A. Hirtz 8624* (Holotype: MO), C. Luer illustr. 20837.

This species from the Cordillera del Condor is allied to Peruvian *Stelis juninensis*. *Stelis picea* is distinguished by a narrowly elliptical leaf that is longer than the ramicaul, but shorter than the erect, congested raceme of deep purple-black flowers. The broadly elliptical dorsal sepal is larger than the obtusely rounded laterals. The petals are more or less quadrate with oblique margins and only one vein is visible. The lip is cuneate with a shallowly concave, acute tip.

213. **Stelis uncifera** Luer & Hirtz, sp. nov.

Ety.: From the Latin *uncifer*, "hook bearing," referring to the tip of the labellum.

Planta grandis caespitosa, racemo longissimo multifloro folio elliptico multilongiore, sepalis ovatis obtusis sepalo dorsali profunde connato lateralibus latioribus obliquis inter se ad basim connatis, petalis perparvis obtusis, et labello erecto ligulato ad apicem hamato distinguitur.

Plant large, robust, epiphytic, caespitose, roots slender. Ramicauls erect, stout, 14-15 cm long, enclosed by a loose, tubular sheath from below the middle, 2-3 imbricating, tubular sheaths below. **Leaf** erect, coriaceous, elliptical, subacute, 11 cm long including a petiole ca. 1.5 cm long, the blade 1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, arching, successively many-flowered raceme with many flowers open simultaneously, 37-44 cm long including the stout peduncle ca. 10 cm long, with a spathe 2 cm long, from an annulus below the apex of the ramicaul; floral bracts tubular, obtuse, 4-5 mm long; pedicels 3 mm long; ovary 2 mm long; **sepals** light yellow, purple toward the base, glabrous except for rare, microscopic hairs, broadly ovate, obtuse, 3-veined, the dorsal sepal ovate, connate to the laterals to near the middle to form a broadly cupped flower, 4-7 mm long, 3.25-4 mm wide, the laterals oblique, connate basally for 1 mm, 4-6 mm long, 3.75-5 mm wide; **petals** light yellow, broadly ovate, obtuse, thickened across the middle, 0.75 mm long, 0.8 mm wide, 3-veined; **lip** black, erect, oblong, 2 mm long, 0.75 mm wide, 0.5 mm deep, the apex obtuse with a recurved, hooklike process, with short, acute, protruding, marginal angles between the lower and middle thirds that continue medially, shallowly concave below on the apical half, the basal third flat, microscopically pubescent, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and small stigmatic lobes apical.

Morona-Santiago: between Guamote and Macas, alt. 2800 m, collected and cultivated by Eduardo Sánchez, flowered in cultivation in Cuenca, 28 Sept. 2004, *A. Hirtz 9079* (Holotype: MO), C. Luer illustr. 20894.

This robust member of *Stelis* sect. *Nexipous* is distinguished from the others by the exceedingly long, stout raceme of many campanulate flowers. The dorsal sepal is deeply connate to the laterals to form a broad sepaline cup. The laterals are connate only basally. The petals are very small beside a much larger column with a pair of small, stigmatic lobes. The oblong, sharply uncinate lip stands erect.

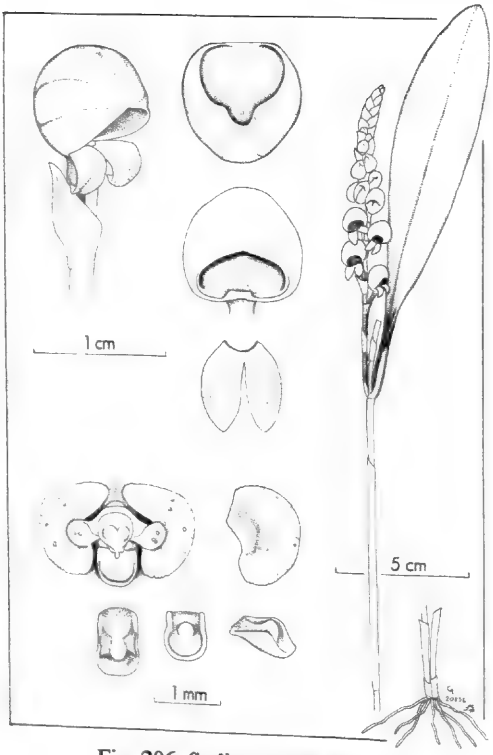


Fig. 206. Stelis encephalota

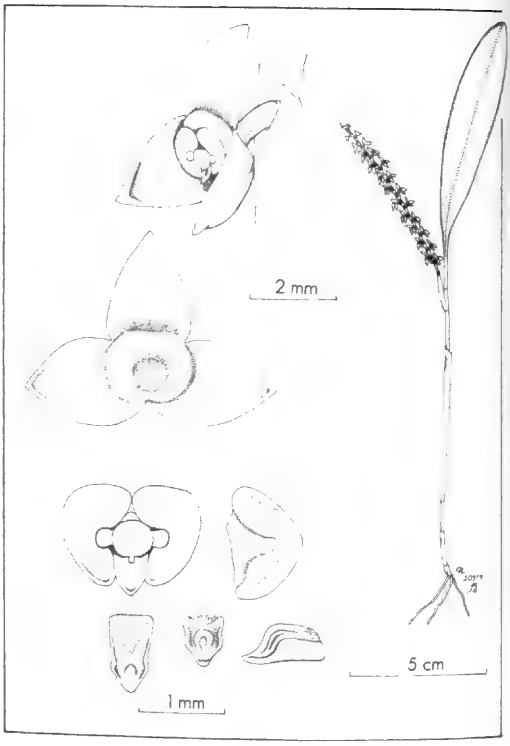


Fig. 207. Stelis laudabilis

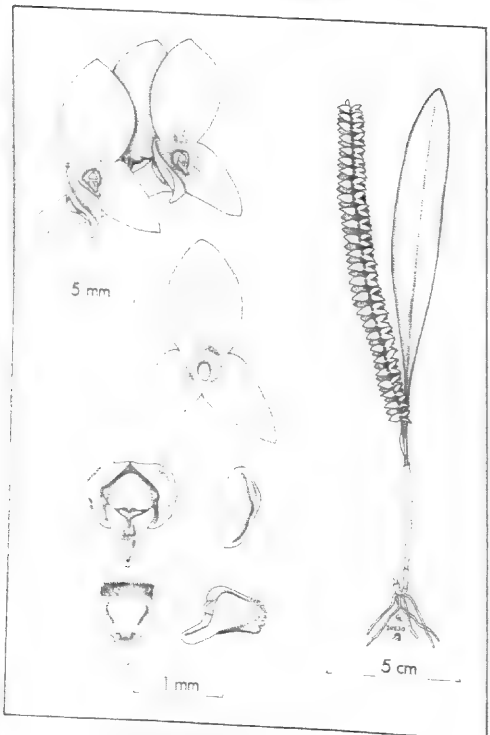


Fig. 208. Stelis lynniana

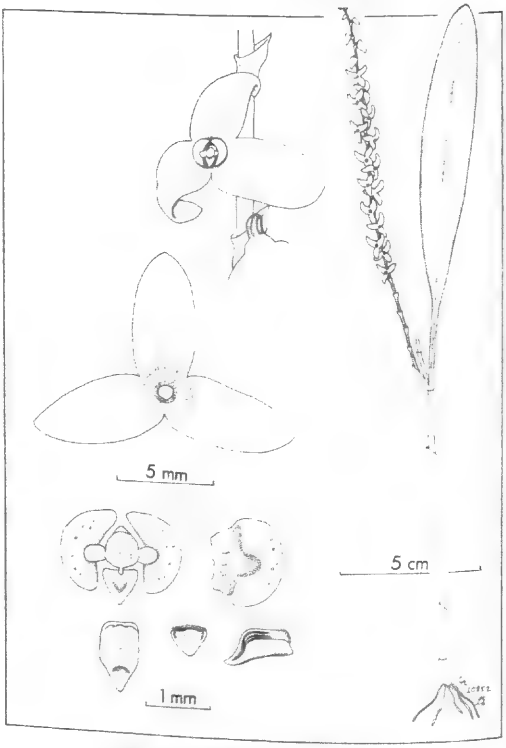


Fig. 209. Stelis mnemonica

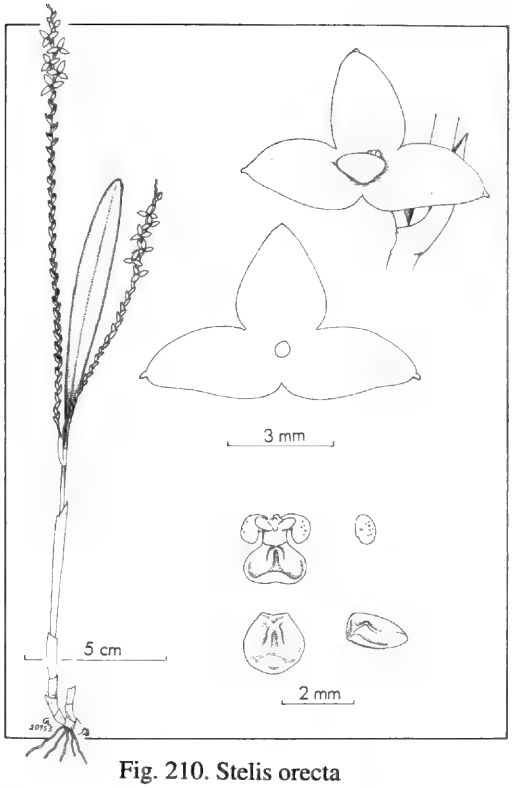


Fig. 210. Stelis orecta

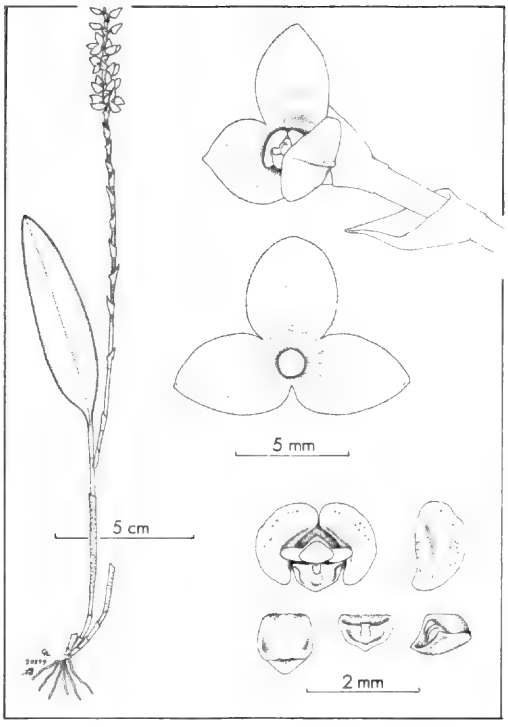


Fig. 211. Stelis pactensis

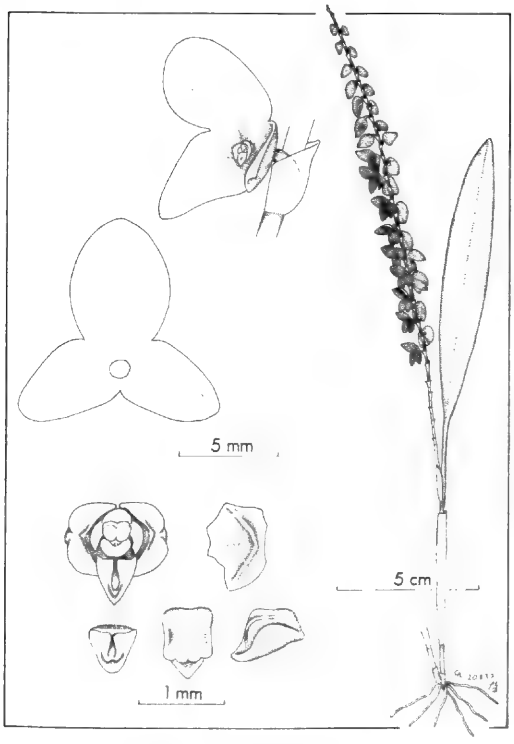


Fig. 212. Stelis picea

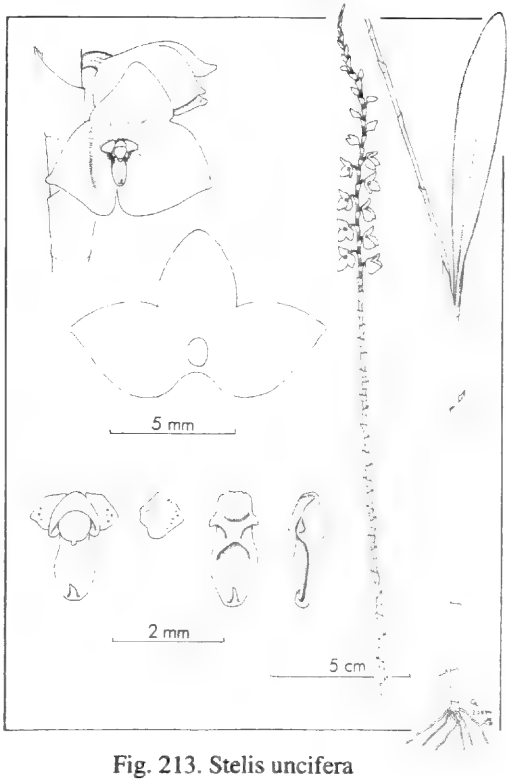


Fig. 213. Stelis uncifera

Section **HUMBOLDTIA**

214. **Stelis bucculenta** Luer & Hirtz, sp. nov.

Ety.: From the Latin *bucculentus*, "with full cheeks," referring to the bar of the lip.

Inter species sectionis *Humboldtiae* planta parva racemo pendulo laxe paucifloro, sepalis intus dense pubescentibus, petalis breviter dense pubescentibus et labello transverse subquadrato antice bucculento.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 4-5 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 2-3 cm long including the petiole ca. 5 mm long, the blade 6-8 mm wide, contracted below into the petiole. **Inflorescence** a descending to pendent, successively and distantly several-flowered raceme with few flowers open simultaneously, up to 8 cm long, from the apex of the ramicaul; floral bracts oblique, infundibular, acute, 1.5 mm long; pedicels 1 mm long; ovary 1.5 mm long; flowers dark purple; **sepals** glabrous externally, densely short-pubescent within, the dorsal sepal broadly ovate, broadly obtuse, connate basally, 4 mm long, 3.5 mm wide, 3-veined, the lateral sepals connate below the middle but held in apposition to form an ovoid, deeply concave, obtuse synsepalum, 3.5 mm long, 4 mm wide, 2 mm deep, 6-veined; **petals** semilunate, 0.6 mm long, 1 mm wide, 3-veined, the apical margin broadly rounded, thick, densely short-pubescent, with a well-defined transverse callus, concave basally; **lip** subquadrate, 0.5 mm long, 0.6 mm wide, 0.5 mm deep, the apical margin narrowly thickened, broadly rounded, the bar convex to either side of a narrow glenion, the dorsum mostly filled with a low, minutely pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long and wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: near Pangui, alt. 1000 m, collected and cultivated at Ecuagenera, Gualaceo, by Lester Lapo, July 2004, *A. Hirtz 8833* (Holotype: MO), C. Luer illustr. 20918.

This species is similar to other small species of section *Humboldtia*, but it shares a pendent raceme with only *Stelis sumacoënsis* Luer & Hirtz. *Stelis bucculenta* is distinguished from all of them by proportionately large petals with thick, densely pubescent margins, and a lip with the bar convex to either side of the glenion.

215. **Stelis glossulicles** Luer & Hirtz, sp. nov.

Ety.: Named for the numerous large flowers similar to *Stelis glossula* Rchb.f.

Species haec *Stelidis glossulae* Rchb.f similis sed habitu multimajore, racemo erecto multilongiore, sepalo dorsali quinquenervato, petalis trinervatis, et labello apice subacuto concavo distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-6 cm long, enclosed by a close, tubular sheath from below the middle and another 1-2 sheaths above the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, petiolate, 5-6.5 cm long including the petiole 1-1.5 cm long, the blade 1 cm wide, cuneate below into the petiole. **Inflorescence** an erect, strict, simultaneously many-flowered raceme with the flowers imbricating in 2 opposite-facing ranks, 7-12 cm long including the peduncle 1.5-2 cm long, with a spathe 1.2 cm long, from a node below the apex of the ramicaul; floral bracts tubular, obtuse, 2 mm long; pedicels 1 mm long; ovary 1 mm long; flowers purple; **sepals** more or less convex, microscopically cellular papillose, the dorsal sepal obovate, obtuse to rounded at the apex, 4.5 mm long, 4 mm wide, incompletely 5-veined, connate nearly 1 mm to the lateral sepals, the lateral sepals transversely ovate, markedly oblique, obtuse, 1.5 mm long, 2.5 mm wide, each 3-veined, connate less than 1 mm into a shallowly concave, bifid synsepal; **petals** purple, transversely ovate, 0.5 mm long, 0.9 mm wide, 3-veined, broadly obtuse at the thickened, cellular-papillose apex, shallowly concave; **lip** purple, subovoid, 0.75 mm long, 0.5 mm wide, 0.4 mm deep, the apex broadly triangular, obtuse, concave, the bar shallowly cleft between a pair of thick, rounded, protuberant, microscopically pubescent calli, continuous with a flat, minutely pubescent callus that fills the basal 2/3 of the lip, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Imbabura: between Carolina and Buena Vista, alt. 1800 m, Nov. 2004, *A. Hirtz, F. Tobar & H. Simbaña 9155* (Holotype: MO), C. Luer illustr. 20884.

This species, known only from northwestern Ecuador, is closely related to *Stelis glossula* Rchb.f. It is distinguished by a slender habit with narrowly elliptical leaves, often with two simultaneous racemes of small flowers exceeding them. The sepals are more or less convex with the laterals held together as a synsepal. The petals are transversely ovate, and the lip is subquadrate, shallowly concave anteriorly with the apex broadly obtuse. A small glenion is present on the bar, and a small, rounded callus is present on the dorsum.

216. **Stelis inflata** Luer, sp. nov.

Ety.: From the Latin *inflatus*, "inflated," referring to the sepals, especially the synsepal.

Planta grandis prolificans, racemis multifloris folio elliptico petiolato excedentibus, sepalo dorsali late ovato, synsepalo inflato, petalis crassis, labello transverse oblongo callo protuberanti.

Plant large, epiphytic, proliferating, roots slender. Ramicauls 6 to more than 10 cm long, enclosed by a tubular sheath from below the middle and another below. **Leaf** erect, coriaceous, elliptical, subacute, 6-7 cm long including a slender petiole 1-1.5 cm long, the blade 1.5-2.5 cm wide, contracted below into the petiole. **Inflorescence** 2 erect, congested, distichous, many-flowered racemes, with most flowers open simultaneously, 11-13 cm long including the peduncle ca. 2 cm long, with a spathe 11-12 mm long, from a node below the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 2 mm long; ovary 1 mm long; **sepals** glabrous, the dorsal sepal ovate, obtuse, concave, 3 mm long, 2-3 mm wide, 5-veined, connate basally to the synsepal, the lateral sepals connate into a transversely concave, inflated synsepal 2 mm long, 3.5 mm wide expanded, 7-veined; **petals** transversely elliptical, the margin broadly rounded, thick, concave below the margin with a transverse callus, 0.5 mm long, 1 mm wide, 3-veined; **lip** transversely oblong, 0.5 mm long, 0.75 mm wide, 0.6 mm deep, the apex broadly rounded with a broad, more or less flattened margin, the bar broadly transverse, protuberant centrally with a deep glenion, the dorsum with a single, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.8 mm wide, the anther and stigmatic lobes apical.

Cotopaxi: Sigchos, Triunfo Grande, alt. 2425 m, 4 Aug. 2003, *J.E. Ramos et al. 6957* (Holotype: CUVC; Isotype: MO), C. Luer illustr. 20952.

The supporting ramicaul of this prolific species has been broken off, with only six centimeters remaining. Two simultaneous, congested racemes, longer than the leaf, have been produced twice on the only specimen seen. The flowers are small with the dorsal sepal broadly ovate and concave with the synsepal transversely inflated. The petals are thickly margined, and the lip is transverse with the bar protuberant.

217. **Stelis lapoi** Luer & Hirtz, sp. nov.

Ety.: Named for Lester Lapo of Gualaceo, who collected and cultivated this species at Ecuagenera.

Planta mediocris, racemo multifloro folio elliptico longipetiolato excedenti, sepalo dorsali ovato subacuto, synsepalo concavo bifido, petalis crassissimis hemisphaericis, labello transverse tricalloso.

Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls stout, 4-5 cm long, enclosed by a tubular sheath from below the middle and another below. **Leaf** erect, coriaceous, elliptical, subacute, 9-10 cm long including a slender petiole 2.5 cm long, the blade 3 cm wide, abruptly contracted below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme, with several flowers open simultaneously, 12-16 cm long including the peduncle 2-3 cm long, with a spathe 1.2 cm long, from a node below the apex of the ramicaul; floral bracts tubular, 2 mm long; pedicels 1.5 mm long; ovary 2 mm long; flowers translucent purple, **sepals** glabrous, the dorsal sepal ovate, subacute, 7 mm long, 4.75 mm wide, 5-veined, connate basally to the synsepal, the lateral sepals connate into a concave, bifid synsepal 6 mm long, 8 mm wide expanded, 8-veined; **petals** hemispherical, the margin thick and broadly rounded, over 180°, overlapping above the column, concave below the margin without a transverse callus, 1 mm long, 1.6 mm wide, 3-veined; **lip** shallowly transverse, 1 mm long, 1.4 mm wide, 0.75 mm deep, the apex broadly rounded with an indistinct, broad margin, the bar broadly transverse with a small glenion ending in a small, superficial cavity within the margin, the dorsum with three, parallel calli (actually modifications of the 3 nerves), the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.25 mm wide, the stigmatic lobes apical, foot obsolescent, the anther white.

Zamora-Chinchipe: Cordillera del Condor, Los Encuentros, alt. 1800 m, collected and cultivated by Lester Lapo at Ecuagenera, Gualaceo, flowered in cultivation July 2004, *A. Hirtz 8790* (Holotype: MO), C. Luer illustr. 20887.

The flowers of this long-petiolate species from the Cordillera del Condor are similar to those of prolific *Stelis neudeckeri* Luer & Dodson from northwestern Ecuador. The dorsal sepal of *S. lapoi* is five-veined, while that of *S. neudeckeri* is multiveined; and the petals of the latter have a transverse callus, while those of the former are without a transverse callus. The lips differ only in minor details.

218. **Stelis nigrescens** Luer & Hirtz, sp. nov.

Ety.: From the Latin *nigrescens*, "becoming black," referring to the flowers.

Planta mediocris caespitosa, racemis distichis longibracteatis folio purpureo elliptico longioribus, sepalo late obtuso multinervato, sepalis lateralibus in synsepalum latum bifidum connatis, petalis lunatis grandibus carinatis, et labello supra tricalloso distinguitur.

Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls stout, erect, 5-10 cm long, enclosed with a tubular sheath on the middle third, and 1-2 tubular sheaths at the base. **Leaf** purple, erect, coriaceous, elliptical, subacute, 6-8 cm long including a petiole 1.5 cm long, the blade 2-2.5 cm wide, contracted below into the petiole. **Inflorescence** 1-2 erect, congested, distichous racemes 9-14 cm long including a peduncle 2-4 cm long, with many flowers open simultaneously, from a spathe 1 cm long, near the apex of the ramicaul; floral bracts oblique, acute, 12 mm long below, 6 mm long near the apex; pedicels 2-2.5 mm long; ovary 2 mm long; **sepals** purple-black, glabrous, the dorsal sepal broadly ovate, 5 mm long, 6 mm wide, incompletely 7-9 veined, connate basally for less than 2 mm, the lateral sepals connate 2/3 the length into an obtuse, transversely ovate, bifid lamina, 3 mm long, 7 mm wide, 6-(incompletely 10-)veined; **petals** transversely lunate-orbicular, the margin broadly rounded and thickened, shallowly concave below, 1.5 mm long, 2 mm wide, 3-veined, concave below a transverse carina across the middle; **lip** thickly quadrate-cuneate, 0.8 mm long, 1.5 mm wide, 0.8 mm deep, concave anteriorly within the thickened margins of the rounded apex, the bar with a glenion, the dorsum shallowly concave with 3 distinct, rounded calli, the base broadly truncate, hinged to the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: along new road east of Loja, east of the pass, alt. 2000 m, 25 Jan. 1992, *C. Luer, J. Luer, P. & A. Jesup & A. Hirtz 16156* (Holotype: MO).

This species of section *Humboldtia* from southern Ecuador is characterized by purplish, elliptical leaves surpassed by a congested, long-bracted raceme of purple-black flowers. The sepals are broadly obtuse and multiveined. The petals are large with a broad, rounded margin and a sharp, transverse carina. The lip is broadly rounded at the apex, and three round calli are present on the dorsum.

219. **Stelis pelycophora** Luer & Hirtz, sp. nov.

Ety.: From the Greek *pelycophora*, "bowl-bearing," referring to the synsepal.

Inter species sect. *Humboldtiae*, planta mediocris caespitosa, folio ovato petiolato, racemo longissimo laxo successivifloro, synsepalo ad centrum conspicue concavo distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8-10 cm long, the middle third enclosed by a tubular sheath, 2 other sheaths about the base. **Leaf** erect, coriaceous, ovate, subacute, petiolate, 7-8 cm long including the petiole 1 cm long, the blade 1.6-1.8 cm wide, cuneate below into the slender petiole. **Inflorescence** a loose, successively many-flowered raceme with few flowers open simultaneously, to 30 cm long including the peduncle ca. 7 cm long, with a spathe 1.2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3.5 mm long; pedicels 3 mm long; ovary 2 mm long; **sepals** light yellow, glabrous, the dorsal sepal triangular-ovate, narrowly obtuse at the apex, 6 mm long, 5.5 mm wide, 5-veined, connate to the lateral sepals 2 mm, the lateral sepals connate into a transversely ovoid synsepal, broadly obtuse at the apex, 4.5 mm long, 6.5 mm wide, 6-veined, abruptly deeply concave centrally; **petals** purple, transversely lunate, shallowly concave within thickened, oblique margins, concave basally below a transverse callus, 1.2 mm long, 2 mm wide, 3-veined; **lip** purple, thickly cuneate, 1 mm long, 1.6 mm wide, 1.2 mm deep, shallowly concave anteriorly within the broadly obtuse, apical margin, the bar thick with a small glenion, the dorsum with a single, round callus, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1.5 mm wide, with the anther and bilobed stigma apical.

Carchi: Chical, alt. 1500 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 11 Jan. 2004, *A. Hirtz 8625* (Holotype: MO), C. Luer illustr. 20860.

This species from northernmost Ecuador differs from other members of section *Humboldtia* by having the ramicaul longer than an ovate, petiolate leaf, and a loose, exceedingly long, solitary raceme of successive flowers. The dorsal sepal is broadly triangular, and five-veined. The synsepal is transverse with a deep, round concavity in the center. The petals and lip are not remarkable, except that a solitary, rounded callus occupies the dorsum of the lip.

220. **Stelis sparsiflora** Luer & Hirtz, sp. nov.

Ety.: From the Latin *sparsiflorus*, "sparsely flowered," referring to the loose raceme.

Inter species sect. *Humboldtiae* planta mediocris caespitosa, racemo laxe plurifloro folio anguste elliptico plus minusve duplolongiore, sepalo dorsali de synsepalo profunde concavo 180° expanso, et labello subquadrato apice concavo obtuse incurvo distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 6-7 cm long, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 8-9 cm long including the petiole ca. 1.5 mm long, the blade 1.3 cm wide in dried state, cuneate below into the petiole. **Inflorescence** an erect, distichous, loosely several-flowered raceme probably with most flowers open simultaneously, to 21 cm long, including a peduncle ca. 5 cm long, subtended by a spathe 1.2 cm long, below the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 1.5 mm long; ovary 3 mm long; **sepals** glabrous, the dorsal sepal light lavender, broadly ovate, obtuse, 6 mm long, 4.5 mm wide, 5-veined, connate basally to the synsepal, expanded 180° from the synsepal, the lateral sepals light yellow, connivent into an ovoid, deeply concave synsepal, 4.5 mm long, 6.5 mm wide, 6-veined, connate basally less than 1 mm, in apposition above the base; **petals** light green, lunate, broadly rounded at the apex with the margin thickened, concave, with a faint transverse callus, 1 mm long, 1.5 mm wide, 3-veined; **lip** light green, subtriangular-quadrate, 1 mm long, 1.2 mm wide, 0.8 mm deep, concave anteriorly within an obtuse, thickened, incurved apex, the bar with a shallow glenion extending from the dorsum, the dorsum with a 4-lobed callus above the base, the base truncate, hinged to the base of the column; **column** stout, 1.5 mm long and wide, with a rudimentary foot, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Jimbura, alt. 2800 m, collected and cultivated in Quito by *A. Hirtz 8746* (Holotype: MO), C. Luer illustr. 20908; "Road to Zamora," alt. 2000 m, 9 July 2002, *A. Hirtz, X. & N. Hirtz 8360* (MO), C. Luer illustr. 21039.

This species, known only from southernmost Ecuador, is similar vegetatively to many other species of section *Humboldtia*, but with a distinctly loose inflorescence. It is most similar to the larger *Stelis alpina* Luer & Hirtz and *S. cajanumae* Luer & Hirtz with the abruptly concave chin in the center of the synsepal, but differs from them by the thickened, obtuse, incurved apex of the lip.

221. **Stelis strobilacea** Luer, sp. nov.

Ety.: From the Latin *strobilaceus*, "formed by overlapping scales," referring to the floral bracts.

Planta grandis caespitosa, raceemo longibracteato folio oblongo petiolato longiore, petalis transversis callosis et labello transverse ad apicem latissime rotundo distinguitur.

Plant large, epiphytic, caespitose, roots slender. Ramicauls erect, stout, 12-21 cm long, with a loose, tubular sheath on the middle third, and another loose, tubular sheath at the base. **Leaf** erect, coriaceous, elliptical-oblong, obtuse, petiolate, 12-15 cm long including the petiole 2 cm long, 4-6 cm wide, contracted below into the petiole. **Inflorescence** 1-2 erect, distichous, many-flowered racemes, loosely flowered below to congested with overlapping bracts above, more than 15 cm long including the peduncle 8-10 cm long (immature in present collection), from a spathe 1.5 cm long below the apex of the ramicaul; floral bracts acute, acuminate, 12 mm long below to 5 mm long above; pedicels 3-4 mm long; ovary 1.5 mm long; flowers green, suffused with purple; **sepals** glabrous, the dorsal sepal ovate, narrowly obtuse, concave, 5 mm long, 2.5 mm wide, 5-veined, connate less than 1 mm to the synsepal, the lateral sepals connate into a broadly ovate, obtuse, deeply concave, shallowly bifid synsepal, 5 mm long, 3.5 mm wide unexpanded, 6-veined; **petals** transversely ovate, 1 mm long, 1.3 mm wide, 3-veined, concave below the broadly obtuse apex with a flattened margin filled with crystals, with a transverse callus; **lip** transversely oblong, 0.75 mm long, 1.3 mm wide, 0.5 mm deep, concave within the broadly rounded apex, the bar low, shallowly cleft, with a low, round callus on the dorsum, the base truncate, hinged to the column-foot; **column** stout, 1 mm long and wide, the anther and the bilobed stigma apical.

Morona-Santiago: south of the pass between Sigsig and Chiqüinda, alt. 2500-2700 m, Feb. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2978* (Holotype: AAU; Isotype: GB), C. Luer illustr. 20525.

This species is characterized by a large, caespitose habit with a loose sheath along the middle third of the ramicaul. The leaf is broad and petiolate. The inflorescence of the only collection known is immature, barely reaching beyond the tip of the leaf, but the raceme is densely congested at the apex with long, overlapping floral bracts, appearing as though the inflorescence would eventually far exceed the leaf. The dorsal sepal of a mature flower is acute with a blunt tip, and the synsepal is deeply concave. The lip is shallow with a broadly rounded apex.

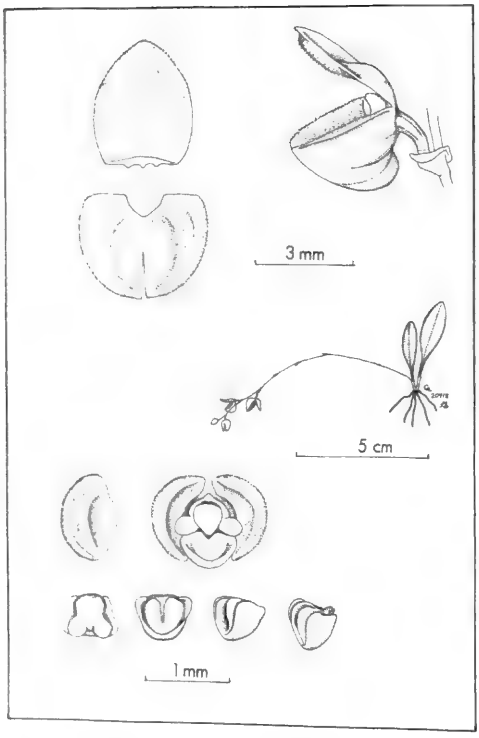


Fig. 214. Stelis bucculenta

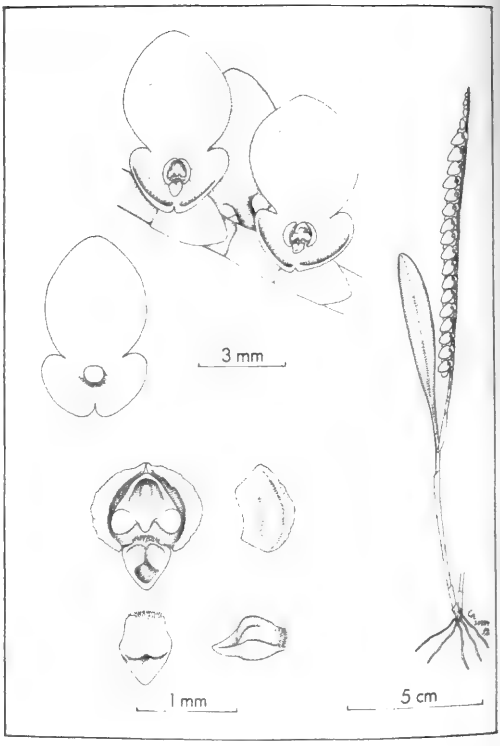


Fig. 215. Stelis glossulicles

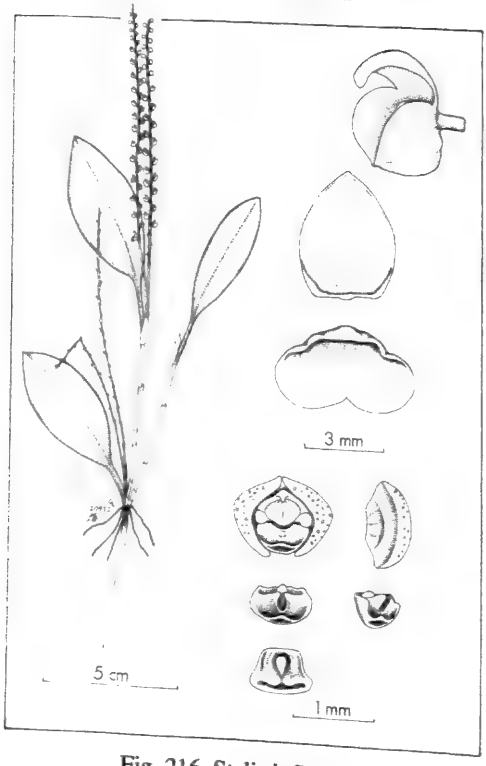


Fig. 216. Stelis inflata

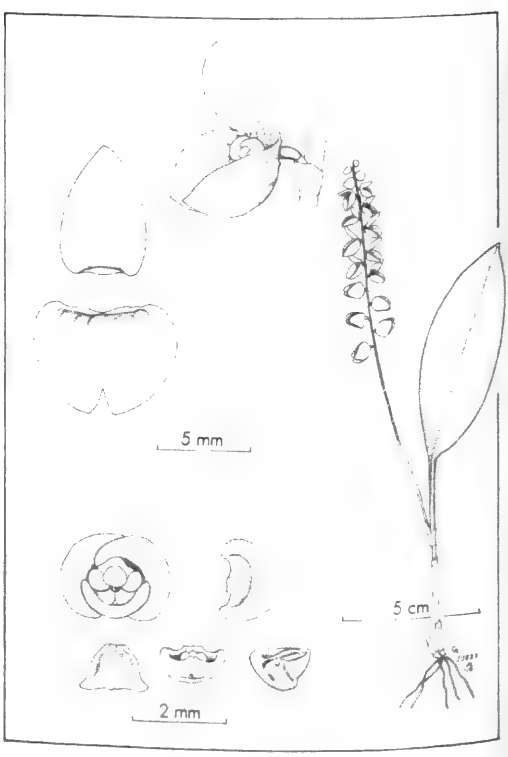


Fig. 217. Stelis lapoi

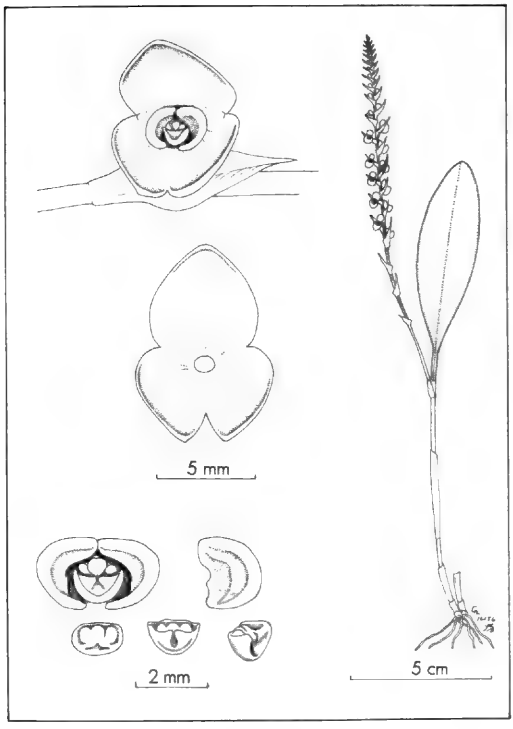


Fig. 218. Stelis nigrescens

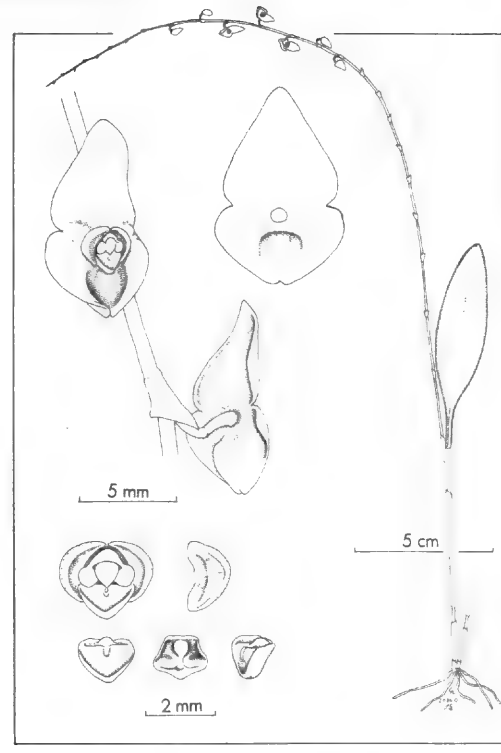


Fig. 219. Stelis pelycophora

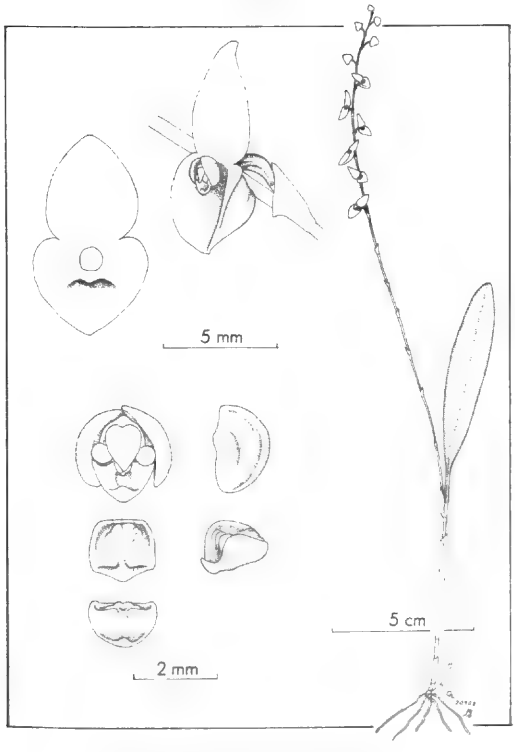


Fig. 220. Stelis sparsiflora

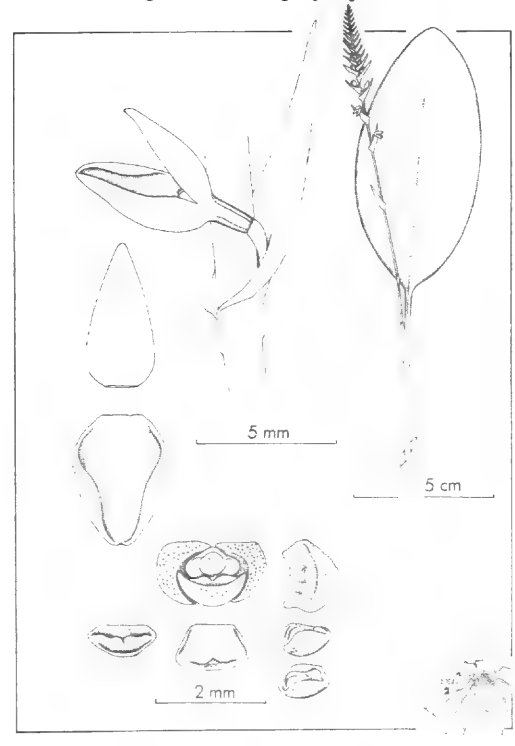


Fig. 221. Stelis strobilacea

Section **STELIS**

222. **Stelis abbreviata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *abbreviatus*, "abbreviated," referring to the short racemes.

Planta parva dense caespitosa, racemo congesto plurifloro folio oblongo breviore, sepalis ovatis anguste obtusis glabris lateraliorum apicibus incrassatis acutis, petalis obovatis uninervis et labello subquadrato tenui leviter concavo distinguitur.

Plant small, epiphytic, densely caespitose, roots slender. Ramicauls erect, stout, 5-7 cm long, enclosed by a tubular sheath from below the middle, and 2-3 sheaths at the thickened base. **Leaf** erect, coriaceous, oblong, round at the apex, 4-4.5 cm long including a petiole ca. 1 cm long, 1.2-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, densely several-flowered raceme, with most flowers open simultaneously, 1-2.5 cm long, flowering from the base, subtended by a spathe 6-7 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 0.75 mm long; ovary 0.75 mm long; flowers light yellow; **sepals** glabrous, broadly ovate, narrowly obtuse, connate basally, the dorsal sepal 1.2 mm long, 0.9 mm wide, 3-veined, the lateral sepals oblique, more or less held forward, 1.3 mm long, 0.8 mm wide, 3-veined, the tip thickened, shortly acutely apiculate; **petals** broadly obovate, broadly obtuse, 0.4 mm long, 0.6 mm wide, 1-veined, shallowly concave below a narrow, thickened margin; **lip** thin, subquadrate, 0.4 mm long, 0.6 m wide, 0.3 mm deep, shallowly concave anteriorly with the apex obtuse, the bar replaced by a low, flat, microscopically pubescent callus that fills the dorsum, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long and wide, the foot obsolescent, the anther and small, bilobed stigma apical.

Napo: Reventador, alt. 1300 m, 14 Sept. 2004, *A. Hirtz, W. & J. Coeck 9044* (Holotype: MO).

This small species from the flank of Volcán Reventador is noted for having tiny flowers in one of the shortest racemes in the genus. The oblong leaf about four centimeters long bears a raceme that flowers from the base and reaches only about half the length of the blade. The sepals are ovate with the thickly pointed laterals held forward. The petals are single-veined, and the lip is thin and shallowly concave above the middle.

223. **Stelis adinostachya** Luer & Hirtz, sp. nov.

Ety.: From the Greek *adinostachys*, "crowded spike," referring to the raceme.

Planta parva dense caespitosa, racemo congestissimo multifloro folio anguste elliptico leviter excedenti, sepalis late ovatis obtusis pubescentibus, petalis transversis incrassatis et labello obtuso non profunde concavo distinguitur.

Plant small, epiphytic, densely caespitose, roots slender. Ramicauls erect, slender, 1.5-4 cm long, enclosed by a tubular sheath from below the middle, and 2-3 sheaths above and at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 3-7 cm long including a petiole 1-2 cm long, 0.7-1 cm wide, cuneate below into the petiole. **Inflorescence** an erect, densely many-flowered raceme in 2 opposite-facing ranks, with simultaneous, overlapping flowers, 3-4 cm long in addition to the peduncle 3-4 cm long, subtended by a spathe 5-6 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** light yellow above the middle, purple below the middle, diffusely pubescent, broadly ovate, obtuse, connate below the middle, the dorsal sepal 2.5 mm long, 3 mm wide, 3-veined, the lateral sepals oblique, 2.25 mm long, 2.5 mm wide, 3-veined; **petals** purple, transversely ovate, 1 mm long, 1 mm wide, 3-veined, concave below a broad, thick margin at the obtuse apex, also concave below a low, transverse callus; **lip** purple, thick, subtriangular, 0.6 mm long, 0.85 m wide, 0.6 mm deep, shallowly concave anteriorly with the apex obtuse, the bar thick with a medium-sized, shallow glenion, the dorsum with a low, rounded callus, becoming 3 toward the base with the veins, the base broadly truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 1 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Napo: along Río Napo toward Puerto Napo, alt. 500 m, 22 Feb. 1982, flowered in cultivation at SEL, 17 Mar. 1983, *C. Luer, A. Hirtz & X. Hirtz 8698* (Holotype: SEL).

This small species from lowland eastern Ecuador is known from only the original collection. It is characterized by a densely caespitose habit with narrowly elliptical leaves slightly exceeded by the racemes. About as long as the peduncle, the raceme is densely packed with overlapping flowers in two opposite-facing ranks. The sepals are broadly ovate and pubescent. The petals and lip are not remarkably distinct.

224. **Stelis aliquantula** Luer & Hirtz, sp. nov.

Ety.: From the Latin *aliquantulus*, "little," referring to the habit.

Planta perparva caespitosa, racemo laxe paucifloro folio elliptico duplolongiore, sepalis late ovatis obtusis, petalis transversis leviter concavis et labello obtuso glenio convexo distinguitur.

Plant very small, epiphytic, caespitose, roots slender. Ramicauls erect, slender, 4-6 cm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 15-25 mm long including a petiole 2-3 mm long, 5 mm wide, cuneate below into the petiole. **Inflorescence** an erect, subflexuous, loosely few-flowered raceme, to 35 mm long including the peduncle 10-15 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; flowers purple; **sepals** glabrous, but large cells visible, broadly ovate, obtuse, connate below the middle, the dorsal sepal 2 mm long, 2.25 mm wide, 3-veined, the lateral sepals only slightly oblique, 2 mm long, 2 mm wide, 3-veined; **petals** transversely oblong, 0.6 mm long, 0.8 mm wide, 3-veined, the apical margin round, thickened and shallowly concave, also concave below a narrow transverse callus; **lip** thick, subquadrate, 0.4 mm long, 0.8 m wide, 0.5 mm deep, shallowly concave anteriorly with the apex broadly rounded with a thin margin, the bar with a thick, elevated glenion, the dorsum concave with a rounded callus near the base, the base broadly truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 1 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Morona-Santiago: along Río Paute near Guarumales, alt. 2000 m, 20 Oct. 1999, *A. Hirtz & E. Sánchez 7001* (Holotype: MO), C. Luer illustr. 20865.
Zamora-Chinchipe: east of the pass (El Toro) between Loja and Zamora, alt. 2550 m, 22 Oct. 2004, *F. Werner 1237* (MO).

This small species is apparently uncommon and endemic in southeastern Ecuador. It is characterized by a very small caespitose plant with loose, few-flowered racemes twice longer. The sepals are equal, broadly ovate and obtuse. The petals are shallowly concave on the rounded margin, and the dorsum of the lip is concave with a callus near the base. The glenion is solid and protuberant.

225. **Stelis amabilis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *amabilis*, "beautiful, lovely," referring to a flowering plant.

Planta grandis repens-scandens, racemo congesto multifloro folio elliptico obtuso plus minusve aequilongo, sepalis late ovatis obtusis, petalis transversis et labello crasso obtuso cum glenione grandi distinguitur.

Plant large, epiphytic, long-repent-scandent, rhizome stout, 1-2.5 cm long between ramicauls, roots stout. Ramicauls ascending-erect, slender, 11-13 cm long, enclosed by a tubular sheath above the middle, and 2-3 sheaths above and at the base. **Leaf** erect, coriaceous, elliptical, obtuse, 10-12 cm long including a petiole ca. 1.5 cm long, 2.5-3.3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, densely many-flowered raceme in 2 ranks, with many flowers open simultaneously, 10-15 cm long including the peduncle 2 cm long, subtended by a spathe 5-6 mm long, from an annulus below the apex of the ramicaul; floral bracts conspicuous, oblique, acute, 3.5 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** light rosy brown, minutely short-pubescent, broadly ovate, obtuse, connate below the middle, the dorsal sepal 2.6 mm long, 2.6 mm wide, 5-veined, the lateral sepals 2.3 mm long, 2.6 mm wide, 4-veined; **petals** red-purple, transversely oblong, with a broad margin at the rounded apex, concave below a low, transverse callus, 0.6 mm long, 1.1 mm wide, 3-veined; **lip** red-purple, thick, 0.6 mm long, 0.6 mm wide, 0.6 mm deep, shallowly concave anteriorly with a broadly obtuse apex, the bar thick with a large glenion, the dorsum with a low, rounded callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.6 mm long and wide, the foot obsolescent, the anther and bilobed stigma apical.

El Oro: at the pass south of Piñas, alt. 950-1000 m, 20 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10679* (Holotype: MO).
Morona-Santiago: forest north of Gualaquiza, alt. 1600 m, 17 May 1988, *C. Luer, A. Hirtz, A. Andreetta, W. Teague & W. Flores 13420* (MO).

This species, uncommon in southern Ecuador, is characterized by a stout, creeping rhizome and ascending ramicauls; an elliptical leaf; and a densely many-flowered, two-ranked raceme that is about as long as the leaf. The sepals are broadly ovate and obtuse; the petals are transverse and concave; and the lip is thickly rounded with a broadly obtuse, apical margin, and a large glenion.

226. **Stelis anderssonii** Luer & Endara, sp. nov.

Ety.: Named for the late Lennart Andersson, co-collector of this and many other species.

Planta mediocris grandisve caespitosa, racemo dense multifloro folio breviore, foliorum bracteis brevibus, sepalis glabris, petalis transversis tenuibus trinervis et labello subquadrato-oblongo obtuse plus minusve subapiculato.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 6-18 cm long, enclosed by a tubular sheath from near the middle and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical-ovate, obtuse, petiolate, 6-12 cm long including a petiole 1-1.5 cm long, the blade 1.5-3.3 cm wide, cuneate below into the petiole. **Inflorescence** 1-2, densely many-flowered racemes with most flowers open simultaneously, 6-9 cm long, including a peduncle ca. 1 cm long, subtended by a spathe 0.7-1.5 cm long, below the apex of the ramicaul; floral bracts erect, oblique, acute, 2-2.5 mm long; pedicels 1.5 mm long; ovary 1.5 mm long. **sepals** glabrous, elliptical, obtuse, connate basally below the middle, 3-veined, the dorsal sepal 2.5 mm long, 2 mm wide, the lateral sepals oblique, 2 mm long, 2 mm wide; **petals** thin, transversely ovate, shallowly concave within the broadly obtuse, slightly thickened apical margin, 1-0.75 mm long, 1.2 mm wide, 3-veined; **lip** subquadrate-ovoid, 0.75 mm long, 0.75 mm wide, 0.6 mm deep, concave anteriorly within the faintly subapicular margin, the bar with a glenion, the dorsum with a low, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, the anther and the bilobed stigma apical.

Pichincha: between Chiriboga and San Juan, alt. 1900-2200 m, *G. Harling, U. Eliasson & L. Andersson 14919* (Holotype: GB), C. Luer illustr. 20519; between Nono and Tandayapa, alt. 1700-1800 m, 24 Mar. 1979, *B. Løjtnant & U. Molau 11339* (AAU, GB), C. Luer 20522.

This uncommon species, found on the western slopes of Pichincha, is similar to *Stelis fissa* Lindl. In the few collections seen, it is characterized by two very crowded, many-flowered racemes shorter to nearly as long as an acute, elliptical-ovate, petiolate leaf. The sepals are obtuse with the laterals held forward. The transverse petals are thin, concave, and three-veined. The lip is shallowly concave anteriorly with a faint apiculum of the margin instead of the sharply acute process as seen in *S. fissa*.

227. **Stelis aphidifera** Luer & Dalström, sp. nov.

Ety.: From the Latin *aphidifer*, "aphid bearing," referring to the appearance of the raceme.

Planta parva caespitosa, racemo sublaxo minutissime multifloro folio anguste elliptico obtuso plus minusve subaequilongo, sepalis late ovatis obtusis minute pubescentibus, petalis subquadratis et labello subquadrato-triangulari dorso cum callo minuto erecto distinguitur.

Plant small, epiphytic, caespitose, roots very slender. Ramicauls erect, very slender, 5-13 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, obtuse, 3-5.5 cm long including a petiole 5-12 mm long, 4-5 mm wide, cuneate below into the petiole. **Inflorescence** an erect, subdensely many-flowered raceme, with many flowers open simultaneously, 3-4.5 cm long including the peduncle ca. 1 cm long, subtended by a spathe ca. 2 mm long, from below the apex of the ramicaul; floral bracts oblique, acute, 1 mm long; pedicels 1 mm long; ovary 0.5 mm long; flowers purple; **sepals** similar, not widely spread, minutely short-pubescent within, broadly ovate, obtuse, connate below the middle, 1.1 mm long, 1 mm wide, 3-veined; **petals** subquadrate, 0.5 mm long, 0.6 mm wide, obscurely 3-veined, shallowly concave below the thickened, broadly rounded apex, with an indistinct transverse callus; **lip** subquadrate-triangular, 0.5 mm long, 0.5 mm wide, 0.3 mm deep, concave anteriorly with a broadly obtuse, slightly acuminate apex, the bar thickly rounded on either side of a central depression, the dorsum with a small, erect callus above the base, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long and wide, the foot obsolescent, the anther and bilobed stigma apical.

El Oro: above Zaruma, alt. 1500 m, 6 Mar. 1982, *C. Luer, A. Andreetta & S. Dalström 7206* (Holotype: SEL).

This species, known from only the original collection, is characterized by a small, caespitose habit with narrowly elliptical leaves, and a subdensely flowered raceme nearly as long as the leaf. The minute flowers could be mistaken for a row of aphids. The sepals are broadly ovate, obtuse and not widely spread; the petals are faintly three-veined; and the lip is distinguished by a small, erect callus above the base.

228. **Stelis asplundii** Luer & Endara, sp. nov.

Ety.: Named for Erik Asplund who collected this species.

Species haec *Stelis lanceae* Lindl., affinis, sed habitu proliferanti, foliis latioribus, sepalis lateralibus obliquis, petalis sine callo transversi et labello ad apicem crassiori differt.

Plant large, epiphytic, scandent, prolific; roots slender. Ramicauls erect, slender, superposed, 8-16 cm long, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical, acute, petiolate, 6.5-7.5 cm long including the petiole 1.8-2.4 cm long, the blade 2-2.3 cm wide, cuneate below into the slender petiole. **Inflorescence** 1-2 erect, congested, distichous, many-flowered racemes with most flowers open simultaneously, 10-18 cm long, flowering to near the base, subtended by a spathe 7 mm long, below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** yellow-green, glabrous externally, glandular-cellular within, broadly ovate, obtuse, connate basally, the dorsal sepal 2.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals oblique, 1.75 mm long, 2.2 mm wide, 3-veined; **petals** maroon, transversely ovate, shallowly concave within the broadly rounded, thickened apical margin, 0.6 mm long, 1.25 mm wide, 3-veined, with a faint, transverse callus; **lip** subquadrate, maroon, 0.5 mm long, 0.8 mm wide, 0.5 mm deep, concave anteriorly with the apical margin thick and rounded, the bar tall with a deep glenion, the dorsum with a rounded callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, with a rudimentary foot, the anther and the bilobed stigma apical.

Pichincha: on a cliff between Chiriboga and Guajalito, alt. ca. 2000 m, 20 Jan. 1956, *E. Asplund 19057* (Holotype: S; Isotype: AMES), C. Luer illustr. 20506.

This species, known from only the original collection, is related to sympatric *Stelis lancea* Lindl., but differs from the latter by a prolific habit instead of a repent habit. The leaves of *S. asplundii* are elliptical, acute, and petiolate, and surpassed by one or two many-flowered racemes; the sepals are broadly ovate; the petals are three-veined; and the lip is rounded at the apex with a single, dorsal callus.

229. **Stelis atrocaerulea** Luer, sp. nov.

Ety.: From the Latin *atrocaeruleus*, "dark blue," referring to the flowers.

Species haec *Stelis pusillae* Lindl., affinis, sed habitu floribusque majoribus, et sepalis extus atro-purpureis intus atrocaeruleis distinguitur.

Plant small, terrestrial, caespitose; roots slender. Ramicauls fasciculated, erect, slender, 2-5 cm long, enclosed by 3-4 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, petiolate, 3-5 cm long including the petiole 0.5-1 cm long, the blade 5-6 mm wide, cuneate below into the slender petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, 10-15 cm long including the peduncle 2-4 cm long, from below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1-1.75 mm long; ovary 1 mm long; **sepals** dark purple externally, dark blue within, cellular-glandular, broadly ovate with the margins more or less recurved, obtuse, connate below the middle, the dorsal sepal 2.5 mm long, 2.5 mm wide expanded, 3-veined, the lateral sepals oblique, 2-2.5 mm long, 2 mm wide, 3-veined; **petals** dark purple, transversely oblong-obovate, shallowly concave, the apex broadly obtuse or rounded, narrowly thickened on the margin, 0.75 mm long, 1 mm wide, 1-veined, without a transverse callus; **lip** dark purple, subquadrate, 0.6-0.8 mm long, 0.8-0.9 mm wide, 0.4-0.5 mm deep, concave anteriorly with the apical margin slightly thickened with a small, obtuse apiculum, the bar with a shallow glenion, the dorsum minutely pubescent, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, with a rudimentary foot, the anther and the bilobed stigma apical.

Bolívar: west of Salinas toward La Palma, alt. 3400 m, 10 Mar. 1991, *C. Luer, J. Luer, A. & X. Hirtz et al. 14947* (Holotype: MO).
Carchi: terrestrial on road embankment between Tulcán and Maldonado, alt. 3050 m, 14 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16011* (MO).
Imbabura: between Mariano Acosta and Puruanta, alt. 3400 m, 2 Jan. 1991, *A. Hirtz 5120* (MO); El Tambo Reserve, alt. 3500 m, 21 Feb. 1998, *A. Hirtz & J. Del Hierro s.n.* (MO), C. Luer 18777.
Azuay: cloud forest north of Cuenca, alt. 2900 m, 8 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12730* (K, MO); terrestrial on road embankment along the new road north of Cuenca, alt. 2900 m, 18 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16047* (MO).

This handsome species with sepals shiny dark purple externally and dark blue or silvery blue inside sometimes covers road embankments in a fashion similar to the common, smaller-flowered *Stelis pusilla* Lindl. It is most similar to *S. atra* Lindl., but the petals of the latter are three-veined, and the lip is type-A. The sepals of *S. caerulea* and *S. pusilla* are single-veined, and their lips are type-A.

230. **Stelis barbimentosa** Luer & Endara, sp. nov.

Ety.: From the Latin *barbimentosus*, "with bearded chin," referring to the stubbly pubescence of the column.

Planta mediocris caespitosa, racemo foliis anguste obovatis longiore, sepalis glabris ellipticis petalis suborbiculatis uninervis, labello discoideo, et columna infra ad apicem breviter pubescenti distinguitur.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 1.5-3.5 cm long, enclosed by 3 tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute to obtuse, 4.5-5.5 cm long including an indistinct petiole ca. 1 cm long, the blade 0.5-0.7 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, subsecund, many-flowered raceme, with most flowers open simultaneously, 8-13 cm long including the peduncle 2-2.5 cm long, from an annulus below the apex of the ramicaul with a spathe ca. 5 mm long; floral bracts narrowly oblique, acute, 2.5-3 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** cream-colored, glabrous, elliptical, obtuse, similar, connate basally, the dorsal sepal 2.5 mm long, 1.6 mm wide, 3-veined, the lateral sepals 2.25 mm long, 1.75 mm wide, 3-veined; **petals** cream, orbicular, thin, concave, the margin minimally thickened, 0.6 mm long, 0.6 mm wide, 1-veined; **lip** purple, discoid, 0.5 mm long, 0.6 mm wide, 0.15 mm deep, shallowly concave the apex rounded with thin margins, the bar low with a small glenion, microscopically pubescent at the truncate base, hinged to the base of the column; **column** stout, 0.6 mm long and wide, the foot obsolescent, the anther and the very small lobes of the stigma apical, the column broadly thickened and shortly pubescent below the stigmatic lobes and rostellum.

Zamora-Chinchipe: Quebrada Honda, south of Yangana, alt. 2100 m, 4 Oct. 1986, *D. D'Alessandro 739* (Holotype: MO), C. Luer illustr. 20478.

This species of southern Ecuador is known only from the type-collection. Vegetatively, it is characterized by narrow leaves exceeded by a slender, many-flowered raceme. The elliptical sepals are similar and connate basally; the petals are round and single-veined; and the lip is shallowly discoid. Like a stubbly chin, this portion of the column above the middle is shortly pubescent, or cellular-papillose. The only other known species with a similarly pubescent column is *Stelis intonsa*, the pubescence of *S. discolor* (syn. *S. barbicollis*) being on the shaft.

231. **Stelis brevissimicaudata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *brevissime caudatus*, "very short-tailled," referring to the tips of the sepals.

Species parvula dense caespitosa, racemo plurifloro folio elliptico petiolato duplo longiore, sepalis carnosis intus minute papuloso apicibus obtusis breviter acuminatis brevissime caudatis, petalis transversis uninervis, et labello minuto antice breviter concavo.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 15-20 mm long, enclosed by 2 close, tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 20-30 mm long including the petiole 6-8 mm long, the blade 5-6 mm wide, contracted below into the petiole. **Inflorescence** an erect, lax, secund, successively several-flowered raceme with few flowers open simultaneously, up to 5.5 cm long including the peduncle ca. 1 cm long, with a spathe 5 mm long, from below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 0.75 mm long; ovary 1 mm long; **sepals** light green with the midvein thick and darker green, thickly fleshy, glabrous externally, microscopically cellular-papillose-pubescent within, transversely ovate with the apices obtuse but contracted into short, thick, acute apicula, the dorsal sepal 1 mm long, 1.2 mm wide, incompletely 3-veined, connate below the middle, the lateral sepals oblique, 0.9 mm long, 1 mm wide, incompletely 2-veined; **petals** dark green, cellular, transversely ovate, shallowly concave below the slightly thickened, rounded, apical margin, 0.3 mm long, 0.5 mm wide, 1-veined; **lip** dark green, subquadrate, 0.3 mm long, 0.4 mm wide, 0.3 mm deep, the apex broadly rounded, the bar shallowly concave with a glenion, the dorsum rounded, microscopically cellular-pubescent, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long and wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: near Chigüinda, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 17 Apr. 2001, *A. Hirtz 7707* (Holotype: MO), C. Luer illustr. 20507.

This minutely flowered species of southeastern Ecuador is distinguished by slender ramicauls, and petiolate, elliptical leaves soon exceeded by a secund, successively flowered raceme. Usually few flowers are open with copious capsules following. The sepals are fleshy with the obtuse apices contracted into short, tail-like apicula. The simple single-veined petals and lip are among the smallest of the genus.

232. **Stelis carchica** Luer & Hirtz, sp. nov.

Ety.: From the Latin *carchicus*, "from Carchi," referring to the province of northernmost Ecuador where the species was collected.

Planta mediocris repens rhizomate crassissimi, racemo dense multofloro foliis oblongis obtusis brevioribus, sepalis late ovatis, petalis uninervis, et labello subquadrato subapiculato distinguitur.

Plant medium in size, epiphytic, ascending, the rhizome stout, ca. 5 mm long between ramicauls; roots slender. Ramicauls erect, stout, 6-10 cm long, enclosed by a tubular sheath from below the middle and another sheath above the base. **Leaf** erect, coriaceous, narrowly elliptical-oblong, obtuse, petiolate, 7-8.5 cm long including the petiole ca. 1 cm long, the blade 1-1.2 cm wide, contracted below into the petiole. **Inflorescence** an erect, congested, distichous, several-flowered raceme with most flowers open simultaneously, up to 4 cm long, flowering to near the base, with a spathe 7-8 mm long, from the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1.25 mm long; flowers yellow; **sepals** glabrous, at most cellular within, convex, broadly ovate, broadly obtuse, 3-veined, connate to near the middle, the dorsal sepal 1.75 mm long, 1.75 mm wide, the lateral sepals 1.75 mm long, 2 mm wide; **petals** thin, suborbicular, 0.6 mm long, 0.75 mm wide, 1-veined, shallowly concave below the thickened, apical margin; **lip** oblong, 0.75 mm long, 0.75 mm wide, 0.5 mm deep, concave within the transversely obtuse apex with an indistinct apiculum, the bar thick with a small glenion, the dorsum convex, microscopically pubescent, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Carchi: terrestrial in scrub forest north of El Playón, alt. 3300 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15197* (Holotype: MO).

This species grows terrestrially at a high altitude in northern Ecuador. It is distinguished by a repent habit with a thick, ascending rhizome. The ramicauls are slender and a little longer than the narrowly oblong, obtuse leaves. A single, multiflowered raceme reaches only half way to the tip. The petals are broadly ovate and three-veined, while the petals are round and single-veined. The lip is concave anteriorly with an ill-defined apiculum on the margin.

233. **Stelis cavernula** Luer & Dalström, sp. nov.

Ety.: From the Latin *cavernula*, "a small cavern," referring to the concave labellum.

Planta parva caespitosa, racemo dense multifloro folio elliptico multilongiore, sepalis ovatis trinervis, petalis incrassatis trinervis, labello antico profunde concavo margine obtuse triangulari.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2.5-4 cm long, enclosed by a tubular sheath and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 4-6.5 cm long including a petiole less than 1 cm long, the blade 0.9-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, to 12 cm long including the peduncle ca. 2 cm long, with a spathe 5 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1.25 mm long; **sepals** expanded, pale yellow, glabrous, broadly ovate, obtuse, convex, connate basally, the dorsal sepal 2.75 mm long, 2.75 mm wide, 3-veined, the lateral sepals 2.25 mm long, 2.5 mm wide, 3-veined; **petals** purple, transversely ovate, with the apex broadly rounded with a thick, rough margin, shallowly concave, and concave below a transverse callus, 0.75 mm long, 1.25 mm wide, 3-veined; **lip** purple, thick, subquadrate-triangular, 0.75 mm long, 1 mm wide, 0.75 mm deep, with the apex triangular, obtuse, the margins obtusely angled below the bar, deeply concave anteriorly with the bar deeply and broadly incised, the dorsum with a transverse, pubescent callus at the base, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the anther and the stigma apical, with the stigma bilobed, the foot obsolescent.

Carchi: between Tulcán and Maldonado, alt. 3500 m, 13 Jan. 1983, *S. Dalström 432* (Holotype: SEL), C. Luer illustr. 20496.

This small species is similar to *Stelis congesta* Luer & Hirtz, but the type-B lip is similar to that of *S. lanata* Lindl. A strict, multiflowered raceme far surpasses an elliptical leaf. The sepals are ovate and three-veined, and the transversely calloused petals are also three-veined. The lip is subquadrate and deeply concave anteriorly with the apex broadly triangular. The bar is deeply and broadly notched.

234. **Stelis celsa** Luer & Hirtz, sp. nov.

Ety.: From the Latin *celsus*, "high, tall," referring to the habit.

Species haec *Stelis lindenii* Lindl., affinis, sed habitu graciliore, racemis strictis multifloris folio multilongiorbus, bracteis floralibus parvis, sepalis membranaceis differt.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 12-21 cm long, with a close, tubular sheath from near the middle and another sheath or 2 above the base. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 11-13 cm long including the petiole ca. 1.5 cm long, the blade 2.5-2.8 cm wide, cuneate below into the petiole. **Inflorescence** 2 erect, congested, secund, many-flowered racemes with most flowers open simultaneously, 23-33 cm or more long including the peduncle 6-9 cm long, with a spathe 1.5 cm long, from a node below the apex of the ramicaul; floral bracts tubular, obtuse, 3 mm long; pedicels 2 mm long; ovary 2 mm long; flowers dark red-purple, **sepals** glabrous, broadly ovate, obtuse, the dorsal sepal 3 mm long, 3 mm wide, 3-veined, connate basally 1 mm to the lateral sepals, the lateral sepals slightly oblique, 2.8 mm long, 3 mm wide, 3-veined, connate 1 mm; **petals** transversely oblong, 0.6 mm long, 0.9 mm wide, 3-veined, broadly round at the thickened, apex, shallowly concave below; **lip** subquadrate-cuneate, 0.6 mm long, 0.8 mm wide, 0.3 mm deep, the apex broadly obtuse, shallowly concave within, the bar with a shallowly concave glenion, the dorsum with a small, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 0.9 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Azuay: scrubby forest south of Cuenca, alt. 2800 m, 20 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16057* (Holotype: MO).

Florally, this large species, found in scrubby forests at a high altitude in southern Ecuador, has flowers of a basic design that is seen in numerous species. Vegetatively, however, it is distinct with long ramicauls that are longer than elliptical leaves. Two long, strict, congested, secund racemes bear numerous flowers simultaneously. The sepals are broadly ovate and obtuse; they are membranous, not fleshy as in *Stelis lindenii*. The petals are simply transverse and three-veined. The lip is a common type-A with a single dorsal callus.

235. **Stelis coleata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *coleatus*, "with sheaths," referring to the ramicauls.

Planta mediocris, ramicaulibus grandivaginatis foliis angusti ovatis sublongioribus, racemo congesto disticho, sepalis late ovatis obtusis lateralibus concavis incurvis, petalis transverse oblongis supra medium incrassatis uninervis, labello obtuso cum callo alto fissurato distinguitur.

Plant medium to large, epiphytic, caespitose. Ramicauls erect, slender, 3-6 cm long, enclosed by 1-2 large, loose sheaths, and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly ovate, acute, 10-14 cm long including a petiole 1-1.5 cm long, 1.5-2.3 cm wide, cuneate below into the petiole. **Inflorescence** a strict, erect, distichous, densely, many-flowered raceme, with most flowers open simultaneously and facing in opposite directions, to 11 cm long including the peduncle 3 cm long, subtended by a spathe 6 mm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acute, 2.5 mm long; pedicels 1 mm long; ovary 1 mm long; flowers light orange, white centrally, **sepals** glabrous, broadly ovate, obtuse, the dorsal sepal 5 mm long, 5 mm wide, 5- or incompletely 7-veined, connate 1.5 mm to the laterals, the lateral sepals slightly oblique, 3.5 mm long, 4.25 mm wide, 3-veined, connate 1 mm, concave and directed forward; **petals** transversely oblong, with a low, broad, cellular margin of apex, 0.6 mm long, 0.75 mm wide, 1-veined; **lip** transversely oblong-cuneate, 0.6 mm long, 0.75 mm wide, 0.5 mm deep, the margin narrowly thickened, broadly obtuse, shallowly concave within, the bar tall medially and cleft into a deep glenion, the dorsum concave with median callus extending back from the tall bar, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long and wide, the foot obsolescent, the anther and bilobed stigma apical.

Esmeraldas: west of Lita, alt. 800 m, 13 Aug. 1986, *A. Hirtz 2949* (Holotype: MO), C. Luer illustr. 20867.

This species, apparently endemic in lowland coastal Ecuador, is characterized by narrowly ovate leaves with ramicauls clothed by conspicuous, loose sheaths. The raceme, about as long as the leaf, is crowded and distichous with relatively large, pale orange flowers. The sepals are broadly obtuse with the laterals held forward simulating a split synsepal. The petals are broad-margined and single-veined. The bar of the lip is tall centrally and cleft into a deep glenion.

236. **Stelis copiosa** Luer & Hirtz, sp. nov.

Ety.: From the Latin *copiosus*, "abundant supply," referring to the numerous inflorescences.

Planta parva caespitosa, inflorescenciis numerosis folio plus minusve duplosuperantis, pedunculis longissimis, racemis abbreviatis plurifloris secundis congestis, sepalis late ovatis obtusis, petalis uninervis, labello semilunato supra unicalloso, et anthera orbiculari proportione grandi distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, 1-2.5 cm long, enclosed by a loose, tubular sheath from below the middle and 1-2 other sheaths below. **Leaf** erect, coriaceous, elliptical, petiolate, acute, 2-5 cm long including the petiole 0.5-1.5 cm long, the blade 1 cm wide, cuneate below into the petiole. **Inflorescence** 2-8 or more erect inflorescences, the peduncles, 5-6 cm long, the raceme simultaneously several-flowered, congested, secund, ca. 2 cm long, subtended by a spathe 5 mm long at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5-2 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** light rosy yellow, glabrous, broadly ovate, obtuse, connate basally, the dorsal sepal 2.8 mm long, 3 mm wide, 3-veined, the lateral sepals oblique, 2 mm long, 2.8 mm wide, 3-veined; **petals** salmon, transversely elliptical, 0.75 mm long, 1.5 mm wide, 1-veined, shallowly concave below the broadly rounded, thickened margin; **lip** salmon, semilunate, 0.6 mm long, 1.2 mm wide, 0.9 mm deep, the apex rounded with an indistinctly thickened margin, the bar shallowly concave anteriorly with an indistinct glenion continuous with a conspicuous, elongated, rounded callus on the concave dorsum, the base broadly truncate, hinged to the column; **column** yellow, stout, 1 mm long and wide, the anther cap rounded, proportionately large, the stigmatic lobes proportionately small.

Morona-Santiago: below Bomboiza, alt. 800 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 27 July 2004, *A. Hirtz 8944* (Holotype: MO), C. Luer illustr. 20907.
Cotopaxi: Tenefuerte, between Quevedo and Latacunga, alt. 800 m, 8 Mar. 1982, *C.H. Dodson 12939* (SEL), C. Luer illustr. 20498.

This little species, found at a low altitude on both sides of Ecuador, is characterized by a caespitose habit, and 2 to 8 or more, elongated peduncles, each bearing a short, congested, simultaneously 6- to 8-flowered raceme, with all the flowers facing the same direction. The number of racemes in flower simultaneously is unknown. The sepals are broadly ovate and obtuse; the petals are transverse and single-veined; and the shallow lip with a broadly rounded apex is distinguished by a single callus on the concave dorsum. The anther is proportionately large with a cellular-glandular surface, and the stigmatic lobes are proportionately small.

237. **Stelis coracina** Luer & Hirtz, sp. nov.

Ety.: From the Latin *coracinus*, "black as a crow," referring to the flowers.

Planta parva, racemo congestissimo disticho folio elliptico acuto longipetiolato plus minusve aequilongo, sepalis late ovatis obtusis, petalis transverse lunatis, labello breve apice rotundo dorsaliter calloso.

Plant small, epiphytic, caespitose. Ramicauls erect, slender, 2.5-4 cm long, enclosed by two, loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 4-6 cm long including a petiole ca. 1.5 cm long, 1 cm wide, cuneate below into the petiole. **Inflorescence** a strict, erect, distichous, densely, many-flowered raceme, with most flowers open simultaneously and facing in opposite directions, 6-7 cm long including the peduncle 2-3 cm long, subtended by a spathe 5-6 mm long, from an annulus below the apex of the ramicaul; floral bracts broadly infundibular, acute, 3 mm long; pedicels 1.5 mm long; ovary 1 mm long; flowers purple-black, **sepals** glabrous, broadly ovate, obtuse, the dorsal sepal 5 mm long, 5.5 mm wide, 3-veined, connate 2 mm to the laterals, the lateral sepals 4 mm long, 4.5 mm wide, 3-veined; **petals** transversely lunate, with a low, smooth, transverse callus, thickened on the broadly rounded apex, 0.75 mm long, 1.2 mm wide, 3-veined; **lip** transversely oblong, 0.5 mm long, 0.9 mm wide, 0.5 mm deep, the margin thickened, broadly rounded, shallowly concave within, the bar bitumidous with a narrow, deep glenion, the dorsum with a 3-lobed callous, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Morona-Santiago: between Sigsig and Chigüinda, alt. 2900 m, 1 May 2004, *A. Hirtz, I. Toshiyuki et al. 8716* (Holotype: MO), C. Luer illustr. 20854.

This handsome little species is characterized by narrowly elliptical, long-petiolate leaves and an inflorescence with a tightly packed, double-rowed raceme of opposite-facing flowers. The dark purple-black flowers are not extraordinary with obtuse sepals; transversely lunate petals with a transverse callus; and a short, concave lip with a round margin, a glenion, and a dorsal callus.

238. **Stelis creodantha** Luer & Hirtz, sp. nov.

Ety.: From the Greek *kreodanthos*, "fleshy-flowered," referring to the sepals.

Planta mediocris caespitosa, racemo stricto congesto foliis angustissime ovatis exceedenti, sepalis obtusis carnosis brevissime pubescentibus convexis infra medium concavis lateralibus antrorsis, petalis transversis trinervis, labello subquadrato obtuso antice leviter concavo ad dorsum tricalloso distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-8 cm long, the upper half enclosed by a tubular sheath from the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, narrowly ovate, acute, petiolate, 6.5-7.5 cm long including a petiole ca. 1 cm long, 0.7-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, strict, distichous, densely many-flowered raceme with many flowers open simultaneously, to 12 cm long including the peduncle 1-2 cm long, from an annulus below the apex of the ramicaul, with a spathe 8 mm long; floral bracts oblique, acute, 3 mm long; pedicels 2 mm long; ovary 1 mm long. Flowers yellow, not widely spread, with the lateral sepals directed forward, **sepals** thick, with a short pubescence and convex above the middle, shallowly concave below the middle, the dorsal sepal ovate, obtuse, 2.75 mm long, 2.2 mm wide, 3-veined, connate basally to the lateral sepals, the lateral sepals ovate, obtuse, slightly oblique, directed forward, 2.5 mm long, 2 mm wide, 3-veined; **petals** transversely ovate, 0.75 mm long, 1 mm wide, 3-veined, concave within the broadly rounded apex with the edge thickened, with a low, indistinct, transverse callus; **lip** thick, subquadrate, 0.5 mm long, 0.75 mm wide, 0.5 mm deep, the apex obtuse, shallowly concave within a slightly thickened margin, the bar with a small glenion, the dorsum shallowly concave with a 3-lobulate, mealy callus, near the base, the base truncate, hinged to the base of the column; **column** stout, 0.8 mm long and wide, the foot obsolescent, the anther and the bilobed stigma apical.

Carchi: cloud forest east of the pass east of Maldonado, alt. 2300 m, 17 Mar. 1991, *C. Luer, J. Luer, A. Hirtz et al. 15137* (Holotype: MO).

This species, found in northernmost Ecuador at an altitude of 2300 meters, is similar to *S. graminosa* (also described herein) found nearby at 1500 meters. The former is distinguished by a densely caespitose habit with narrowly ovate leaves borne by slightly longer ramicauls. The many-flowered raceme of yellow flowers is nearly twice as long. The sepals are thick, and shortly pubescent and convex above the middle. The lip is type-A with the dorsal callus three-lobed.

239. **Stelis crinita** Luer & Hirtz, sp. nov.

Ety.: From the Latin *crinitus*, "hairy," referring to the long pubescence of the sepals.

Planta grande dense caespitosa, racemis paucis congestis parvifloris folio ovato plus minusve aequilongis, sepalis late ovatis intus longipubescentibus, petalis transversis trinervis, et labello ovoideo ad apicem late triangulari ad basim breviter pubecenti distinguitur.

Plant large, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 9-23 cm long, with a short, tubular sheath just below the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, ovate, acute at the apex, broadly rounded at the base, the blade 5-8 cm long, 2-3.4 cm wide, abruptly contracted below into a petiole 1-1.5 cm long. **Inflorescence** 2-3 erect, strict, distichous, densely many-flowered, simultaneously flowered raceme with most flowers open simultaneously, 7-10 cm long including the peduncle ca. 3 cm long, from an annulus below the apex of the ramicaul, with a spathe 1.5-1.7 mm long; floral bracts oblique, acute, 3 mm long; pedicels 2 mm long; ovary 1.5 mm long. Flowers light yellow, **sepals** expanded, more or less equal, long-pubescent within, broadly ovate, obtuse, 2 mm long, 2 mm wide, 3-veined, connate basally; **petals** transversely obovate, 0.8 mm long, 1.2 mm wide, 3-veined, shallowly concave within the broadly rounded apex with the edge thickened, with a low, indistinct, transverse callus; **lip** thick, subovoid, 1 mm long, 0.8 mm wide, 0.5 mm deep, the apex subacute, triangular, shallowly concave within slightly thickened margins, the bar with a shallow glenion, the dorsum densely short-pubescent, above the base, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.8 mm long, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: above Limón, alt. 3300 m, collected and cultivated by Ecuagenera, Gualaceo, 27 July 2004, *A. Hirtz 8943* (Holotype: MO), C. Luer illustr. 20906.

This species, presently known only from a high altitude in southeastern Ecuador, is characterized by long, slender ramicauls with a proportionately short, tubular sheath just below the middle. The leaves are ovate, rounded at the base, and more or less equaled in length by two or three densely small-flowered racemes. The sepals are loosely long-pubescent within. The lip is type-B with a large glenion, with the dorsum densely short-pubescent.

240. **Stelis crossota** Luer & Hirtz, sp. nov.

Ety.: From the Greek *crossotos*, "fringed," referring to the sepals.

Planta perparva, racemo laxe paucifloro folio elliptico obtuso longiore, sepalis late ovatis obtusis valde fimbriatis, petalis transverse oblongis, et labello illi *Stelis argentata* similis.

Plant very small, epiphytic, densely caespitose. Ramicauls stout, erect, 5-10 mm long, enclosed by two tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical-obovate, obtuse to rounded at the apex, 15-20 cm long including a petiole 3-4 mm long, 6-7 mm wide, cuneate below into the petiole. **Inflorescence** a loose, erect, successively few-flowered raceme, 3-4 cm long including the peduncle 1.5 cm long, from a node below the apex of the ramicaul; floral bracts infundibular, obtuse, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** translucent white, cellular-glandular with the margins thickened and densely long-ciliate within, ovate, obtuse, the dorsal sepal 3 mm long, 3 mm wide, 3-veined, connate basally to the laterals, the lateral sepals 2.3 mm long, 2.3 mm wide, 3-veined; **petals** green, transversely oblong, thickened on the broadly rounded apical margin, 0.6 mm long, 1.2 mm wide, 3-veined; **lip** green, transversely ovoid, 0.4 mm long, 0.9 mm wide, 0.6 mm deep, the margin thickened, broadly rounded, with an acute, central apiculum, shallowly concave within, the bar broadly rounded, with an elongated, flat glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.9 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Napo: between Rio Jatunyacu and Pano, alt. 800 m, 22 Feb. 2004, *A. Hirtz & X. Hirtz 8681* (Holotype: MO), C. Luer illustr. 20855.

This tiny species is characterized by thick, obovate leaves borne by shorter ramicauls, and a loose, successively three- to four-flowered raceme that eventually reaches twice the length of the leaves. The sepals are white, obtuse, and densely ciliated within a thickened margin; the petals are transversely oblong; and the lip is similar to that of *Stelis argentata* Lindl. including a minute apiculum.

241. **Stelis cryophila** Luer & Hirtz, sp. nov.

Ety.: From the Greek *kryophilus*, "cold loving," referring to the chilly habitat 3400 meters above sea level.

Planta parva caespitosa prolificans, folio elliptico obtuso cauli plus minusve aequilongo, racemis pluribus congestissimis folio longioribus, bracteis conspicuis, sepalis crassis ovatis obtusis imbricantibus, et labello subcuneato antice concavo acuto distinguitur.

Plant small to medium in size, terrestrial, caespitose; roots slender. Ramicauls erect, stout, prolific, 2-8 cm long, with a tubular sheath from near the middle and 2 others about the base. **Leaf** erect, coriaceous, elliptical oblong, obtuse, 3-5 cm long including a petiole 1-1.5 cm long, 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** 1-3, congested, overlapping, many-flowered racemes with most flowers simultaneously in flower, 8-10 cm long including the peduncle ca. 1 cm long, with a spathe 0.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** fleshy, not wide-spreading, dull yellow to purple, glabrous or cellular-glandular within, broadly ovate, obtuse, connate below the middle, the dorsal sepal 3.5 mm long, 3 mm wide, 3-veined, the lateral sepals 2.75 mm long, 2.75 mm wide, 3-veined; **petals** dark purple, transversely ovate, thickened along the transversely obtuse apex, shallowly concave, 1 mm long, 1.5 mm wide, 3-veined, with a low transverse callus; **lip** dark purple, thickly sub-cuneate, 1 mm long, 1.3 mm wide, 1.5 mm deep, concave anteriorly within the triangular, subacute apex, without thickened margins, the bar divided by a concave glenion extending from a large callus on the dorsum, the base microscopically pubescent, truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the anther and bilobed stigma apical.

Carchi: terrestrial on the road embankment west of the pass between Tulcán and Maldonado, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15066* (Holotype: MO); same collection data, *C. Luer et al. 15067* (MO).

This species grows terrestrially in the cold, high, rocky terrain below a pass in northernmost Ecuador, and probably also epiphytically in scarce, scrubby vegetation nearby. The plants are stout with some ramicauls producing another. The racemes are crowded with long-pointed floral bracts and overlapping flowers. The sepals are fleshy, obtuse, and not widely spread. The concave lip with a triangular apex is wedged between the lateral sepals.

242. **Stelis cryptopetala** Luer & Hirtz, sp. nov.

Ety.: From the Greek *kryptopetalus*, "hidden petals," referring to the out-of-sight petals.

Planta mediocris caespitosa, racemis congestis multifloris, flores minutissimis, sepalis subacutis, petalis membranaceis post columnam occultis, et labello oblongo apiculato distinguitur.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 5-9 cm long, with a tubular sheath from below the middle and another 2 sheaths at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to rounded at the apex, 5-8 cm long including a petiole 6-7 mm long, the blade 1.5-1.8 cm wide, narrowed below into the petiole. **Inflorescence** an erect, secund, congested, simultaneously many-flowered raceme with many flowers open simultaneously, 10-13 cm long including the peduncle ca. 1.5 cm long, with a spathe ca. 7 mm long, from an annulus below the apex of the ramicaul; floral bracts tubular, oblique, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** light yellow, glabrous, ovate, subacute, connate basally into a short tube, the dorsal sepal 3 mm long, 1.8 mm wide, 3-veined, the lateral sepals held forward, 2.5 mm long, 1.5 mm wide, 3-veined; **petals** transversely oblong, membranous, truncate, shallowly concave, 0.5 mm long, 0.8 mm wide, 3-veined, borne against the shaft of the column; **lip** subquadrate, 1.25 mm long, 0.8 mm wide, 0.5 mm deep, concave anteriorly with the apex truncate and apiculate, the bar cleft into 2 convex halves, microscopically pubescent below the middle, the base truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 1 mm wide, the anther and stigma apical.

Morona-Santiago: beyond Sigsig, alt. 3000 m, 28 July 2004, *A. Hirtz & family 8965* (Holotype: MO); C. Luer illustr. 20893.

This species from southeastern Ecuador is similar to *Stelis juncea* Luer & Hirtz of northwesternmost Ecuador. It is distinguished by slender ramicauls with elliptical-oblong leaves that are surpassed by a similar, slender, congested, secund raceme of numerous, minute flowers. The petals are short and membranous, and held against the column below the middle. The lip is type-B with an apiculum.

243. **Stelis delicata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *delicatus*, "dainty," referring to the habit.

Planta parva caespitosa, ramicaulibus gracillimis folio anguste elliptico longipetiolato aequalilongis, racemis elongatis tarde successivifloris multiflorisque, sepalis carnosis ovatis subacutis vel obtusis lateralibus minoribus obliquisque, petalis latissime lunatis microscopice papillosis, et labello subquadrato late obtuso concavo cum callo dorsali distinguitur.

Plant small, delicate, epiphytic, caespitose; roots slender. Ramicauls erect, very slender, 3-5.5 cm long, with a close, tubular sheath from near the middle and 2 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 3-5.5 cm long including a slender petiole 1.5-2 cm long, the blade 0.5-0.6 mm wide, cuneate below into the petiole. **Inflorescence** an erect, arching, subdense, successively but slowly many-flowered raceme with 1-2 flowers open simultaneously, 10-14 cm long including the peduncle 4-5 cm long, with a slender spathe 0.5 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 2-2.5 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** expanded, dark purple, glabrous, cellular-glandular within, broadly ovate, subacute to obtuse, the dorsal sepal 3.5 mm long, 3 mm wide, 3-veined, the lateral sepals oblique, 1.8 mm long, 2.4 mm wide, 3-veined; **petals** dark purple, suborbicular or transversely ovate, narrowly thickened along the rounded apex, microscopically papillose, concave in the lower third, 1 mm long, 1.1 mm wide, 3-veined; **lip** dark purple, thickly subquadrate, 0.6 mm long, 0.75 mm wide, 0.4 mm deep, concave anteriorly within the broadly rounded apex with minimally thickened margins, the bar with a superficial glenion, the dorsum shallowly concave with a rounded callus flanked by the pair of thickened, lateral veins, the base truncate, hinged to the column-foot; **column** stout, 0.75 mm long and wide, with the anther and bilobed stigma apical.

Morona-Santiago: new road from Guamote to Macas, alt. 3100 m, 14-16 Oct. 2004, *A. Hirtz, E. Sánchez, F. Tobar, W. Bautz & Augustin 9097* (Holotype: MO), C. Luer illustr. 9097.

This delicate species is characterized by slender ramicauls and acute, narrowly elliptical, long-petiolate leaves that are far exceeded by a slender, successively raceme. The broadly ovate sepals are connate to near the middle, the dorsal sepal being slightly larger. The petals are proportionately large, hemispheric and cellular-papillose. The type-A lip has a well-developed glenion and a rounded callus on the dorsum.

244. **Stelis dimidiata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *dimidiatus*, "half smaller," referring to the minute flowers.

Planta perparva caespitosa, racemis congestis multifloris multilongioribus, flores minutissimis, sepalis carnosis late ovatis obtusis, petalis latissimis trinervis, et labello oblongo infra apicem transversum concavo cum callo centrali rotundo distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-8 mm long, enclosed by a tubular sheath from below the middle and another at the base. **Leaf** erect, coriaceous, elliptical, obtuse to round at the apex, 15 mm long including a petiole 3-4 mm long, 5-7 mm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, many-flowered raceme with several flowers simultaneously in flower, 5-7 cm long including the peduncle 2-3 cm long, from within the sheath; floral bracts broadly infundibular, obtuse, 1.5 mm long; pedicels 0.5 mm long; ovary 0.8 mm long; **sepals** fleshy, not widespreading, brownish, glabrous externally, cellular papillose within, connate basally, the dorsal sepal suborbicular, with the tip thick and contracted, 1.5 mm long, 1.3 mm wide, 3-veined, the lateral sepals 1.4 mm long, 1 mm wide, 3-veined; **petals** suborbicular, thickened along the broadly rounded apex, shallowly concave, 0.5 mm long, 0.8 mm wide, 3-veined; **lip** thickly oblong-obovate, 0.6 mm long, 0.8 mm wide, 0.5 mm deep, concave anteriorly within the broadly rounded apex, without thickened margins, the bar replaced by a protuberant callus without an obvious glenion, the callus continues to fill the dorsum with a broad, microscopically pubescent callus, the base broadly truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long and wide, with the anther and bilobed stigma apical.

Carchi: east of La Gruta La Paz, alt. 3200 m, 13 Sept. 2004, *A. Hirtz, W. & J. Coeck 9022* (Holotype: MO), C. Luer illustr. 20885.

This very small, high altitude species is similar superficially to many others, but it is distinguished by broad, ovate leaves that are far surpassed by many-flowered raceme of tiny flowers. The sepals are fleshy and do not spread; the petals are broad and three-veined; and the type-B lip contains a broad callus that protrudes anteriorly.

245. **Stelis dissimulans** Luer & Dodson, sp. nov.

Ety.: From the Latin *dissimulans*, "differing," in allusion to its differing from *Stelis biserrula* Lindl.

Species haec *Stelis biserrulae* Lindl. habitu persimili, sed sepalis ovatis expansis.

Plant medium in size, epiphytic to terrestrial, long-scandent; roots slender. Ramicauls ascending, slender, prolific, to 16 cm long below to 7 cm long above, enclosed by a tubular sheath below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical-ovate, acute, petiolate, 6-8 cm long including the petiole ca. 1.5 cm long, 1-1.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect to arching, distichous, densely many-flowered raceme with many flowers open simultaneously, 8-13 cm long including the peduncle ca. 2 cm long, from an annulus below the apex of the ramicaul with a spathe 7-8 mm long; floral bracts oblique, 2.5 mm long; pedicels 1.5 mm long; ovary 0.8 mm long. **sepals** expanded, glabrous, green, the dorsal sepal red externally, erect, ovate, obtuse, slightly convex, 3 mm long, 2 mm wide, 3-veined, connate 0.5 mm basally to the lateral sepals, the lateral sepals ovate, obtuse, slightly convex, 2.5 mm long, 1.8 mm wide, 3-veined; **petals** green, transversely obovate, 0.8 mm long, 1 mm wide, 3-veined, the apex broadly obtuse with the edge thickened, obtuse, shortly acuminate, concave below the middle, the base truncate; **lip** thick, subquadrate-trilobed, 0.6 mm long, 0.6 mm wide, 0.3 mm deep, the apex triangular, acute, shallowly concave, the bar with a concave glenion, the dorsum with an obscurely lobed, microscopically pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 0.6 mm long and wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Pichincha: terrestrial along the new road above Tandapi, alt. 2300 m, 3 Mar. 1985, *C.H. Dodson & Piedad Dodson 15649* (Holotype: MO), C. Luer illustr. 20458.

This species, noted to be common when collected, is known only from the original collection from west-central Ecuador. The long-prolific and scandent habit with racemes about as long as narrow leaves is inseparable from the frequent and sympatric *Stelis biserrula* Lindl. However, the flowers of the latter are bilabiate with a deeply concave synsepal, while the flowers of *S. dissimulans* are widely spread with ovate sepals that are connate only at their bases. The obtusely pointed petals and lip of the two concepts are very similar. This finding places these two nearly identical taxa in two different "sections" (*Humboldtia* and *Stelis*).

246. **Stelis diversifolia** Luer & Hirtz, sp. nov.

Ety.: From the Latin *diversifolius*, "with diverse leaves," referring to variable shapes of the leaves.

Planta mediocris breviter ascendens-caespitosa, racemo folio excedenti, sepalis ovatis obtusis brevissime pubescentibus trinervis, petalis transversis trinervis, labello subquadrato-triangulato antice concavo margine rotundo encrassato, glenione concavo, dorsaliter cum callo erecto distinguitur.

Plant medium in size, epiphytic, shortly ascending-caespitose; roots slender. Ramicauls erect, slender, 2-4 cm long, enclosed by a loose tubular sheath and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-subacute, to broadly oblong-obtuse, 3-7 cm long including a petiole 1-2.5 cm long, 1-1.5 cm wide, narrowly or abruptly cuneate below into the petiole. **Inflorescence** an erect, sublax, several- to many-flowered raceme with several flowers open simultaneously, 5-12 cm long including the peduncle 2.5-3 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acute, 2-2.5 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** similar, purple, glabrous externally, cellular-glandular to shortly pubescent within with the hairs more or less capitate, broadly ovate, obtuse, 3-veined, connate basally, the dorsal sepal 2-2.5 mm long, 2 mm wide, the lateral sepals 2 mm long, 2 mm wide; **petals** purple, transversely ovate, 0.75-1 mm long, 1-1.25 mm wide, slightly concave below the middle, slightly thickened above the middle, with the apex broadly obtuse, thickened and flattened on the margin; **lip** purple, thickly ovoid-subquadrate, 0.5 mm long, 0.5 mm wide, 0.5 mm deep, concave anteriorly with broad margins, the apex rounded, the bar with a central, ciliate callus, cleft centrally into a glenion anteriorly, the dorsum shallowly concave with an erect, pubescent, subcylindrical callus above the base, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Pichincha: forest between San Miguel de los Bancos and Mindo, alt. 1450 m, 1 Apr. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9870* (Holotype: MO), C. Luer illustr. 9870; old road between Chiriboga and Santo Domingo, alt. 1650 m, 31 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9853, 9854, 9855* (MO).
Imbabura: Reserva Biológica Los Cedros, trail to Cerro de la Plata, alt. 2300-2400 m, 13 Mar. 2002, *L. Endara A. 960* (QCA).
Bolívar: tall forest south of Chillanes, alt. 2400 m, 11 Mar. 1991, *C. Luer, J. Luer, A. Hirtz, et al. 14998, 14999* (MO).

Vegetatively, this locally abundant, medium-sized species is similar to many of the other species characterized by a caespitose habit, elliptical leaves, and a congested raceme that exceeds the leaves in length. However, it is variable vegetatively with narrowly elliptical to broadly oblong leaves. The small, purple flowers are distinguished by obtuse sepals pubescent within; transversely ovate petals; and a thick, subquadrate lip that is concave anteriorly with thickened margins, with a bar with a prominent glenion, and with the dorsum slightly concave with an erect, rounded, ciliate callus above the base.

247. **Stelis dolichantha** Luer & Hirtz, sp. nov.

Ety.: From the Greek *dolichanthus*, "long-flowered," referring to elongated inflorescence.

Planta mediocris caespitosa, racemo elongato multifloro folio anguste elliptico multilongiore, sepalis glabris ovatis obtusis trinervis, petalis transversis trinervis supra basim crassimis, labello subquadrato-triangulato antice concavo margine latissime obtuso, glenione parvo, dorsaliter subcalloso distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2 cm long, enclosed by a loose tubular sheath and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, 4.5 cm long including a petiole ca. 0.5 cm long, the width undetermined, 3 mm wide in dried, revolute state, estimated at least 5 mm wide. **Inflorescence** an arching, suberect, sublax, subflexuous, many-flowered raceme with several flowers open simultaneously, up to 35 cm long including the peduncle ca. 5 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1.25 mm long; **sepals** similar, purple with yellow edge, glabrous, broadly ovate, obtuse, 3-veined, connate basally, the dorsal sepal 4 mm long, 4.5 mm wide, the lateral sepals slightly oblique, 2.3 mm long, 4 mm wide; **petals** yellow, transversely lunate, 1 mm long, 1-1.6 mm wide, 3-veined, the margin broad, thick and flattened, concave above and below a thick transverse callus; **lip** yellow, thickly ovoid-subquadrate, 0.5 mm long, 1.2 mm wide, 0.6 mm deep, concave anteriorly with broad, flat margins, the apex rounded, the bar with a short, ill-defined callus, the dorsum shallowly concave with a low, shortly pubescent, indistinct calli, the base truncate, hinged to the base of the column; **column** stout, 1 mm long and wide, the anther and the bilobed stigma apical.

Morona-Santiago: below Pangüi, alt. 900 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation by Lester Lapo, July 2004, *A. Hirtz 8832* (Holotype: MO), C. Luer illustr. 20916.

This vegetatively small species from southeastern Ecuador is characterized by an exceedingly long, sublaxly flowered raceme, in habit similar to *Stelis elongatissima* Luer & Hirtz and *S. longissima* Luer & Hirtz as well as several small species with racemes that elongate over a period of time. The sepals are glabrous, broadly ovate and three-nerved; the petals are thickly transverse with a broadly rounded, flat, sharp margin, and a broad, flat-margined transverse callus; and the margin of the lip is also broad and flat.

248. **Stelis drewii** Luer & Endara, sp. nov.

Ety.: Named for W.B. Drew, collector of this species.

Planta grandis repens-ascendens, ramicaulibus quam foliis ellipticis acutis multilonioribus, racemo laxefloro folio longiore, sepalis ovatis obtusis, petalis transversis crassis carinatis et labello hemispherico levitissime concavo distinguitur.

Plant large, epiphytic, long-ascending-repent, rhizome stout, 1-3 cm long between ramicauls, roots slender. Ramicauls ascending-erect, slender, 10-20 cm long, enclosed by a tubular sheath from near the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 8 cm long including a petiole ca. 1 cm long, 1.7 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, many-flowered raceme, probably with many flowers open simultaneously, 10-15 cm long including the peduncle 2-3 cm long, subtended by a spathe 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** translucent straw-colored, slightly suffused with purple at the base, ovate, obtuse, margined, glabrous, connate below the middle, the dorsal sepal 4.5 mm long, 4.5 mm wide, 5-veined, the lateral sepals oblique, 3.5 mm long, 3.5 mm wide; **petals** green, thick, transversely ovate, with a broad margin at the rounded apex, concave below a sharp, transverse callus, 1.2 mm long, 1.5 mm wide, 3-veined; **lip** thick, subsemiorbicular, 0.9 mm long, 1.2 mm wide, 0.6 mm deep, very shallowly concave with a round, broadly margined apex, the bar thick with a superficial glenion, the dorsum with a low, rounded callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.2 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Imbabura: trail to Laguna de la Virgen, east of Volcán Cayambe, alt. 8,850 ft., 27 July 1944, *W.B. Drew E-389* (Holotype; AMES), C. Luer illustr. 20492.

This species, known from only the original collection by Drew with the Ecuadorian Cinchona Mission, is characterized by a stout, creeping rhizome and ascending ramicauls that are much longer than the elliptical leaf. The loosely flowered raceme is longer than the leaf. The sepals are ovate and obtuse with the laterals distinctly smaller than the dorsal. The petals are thickly transverse and concave below a broad margin and concave below a transverse callus. The lip is thickly rounded with a broad, apical margin.

249. **Stelis elatissima** Luer & Hirtz, sp. nov.

Ety.: From the Latin *elatissimus*, "very tall," referring to the raceme.

Species haec *Stelidis vulcani* Rchb.f. affinis, sed foliis angustioribus quam caulibus proportione longioribus, racemis congestissimis multifloris elatissimis et labelli ad dorsum callo solo erecto differt.

Plant medium in size, epiphytic, caespitose, roots slender. Ramicauls erect, stout, 5-8 cm long, enclosed by a tubular sheath from below the middle and 1-2 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-oblong, subacute, 7-10 cm long including a petiole ca. 1.5 cm long, 1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** 1-2 erect, slender, congested, distichous, many-flowered racemes, with most flowers open simultaneously, 23-34 cm long including the peduncle 5-8 cm long, subtended by a spathe 1-1.5 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1-2.5 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; flowers white, **sepals** fleshy, microscopically cellular-glandular within, the dorsal sepal ovate, convex, obtuse, connate basally less than 1 mm, 5 mm long, 3.4 mm wide, 3-veined, the lateral sepals ovate, oblique, obtuse, connate less than 1 mm, in apposition into a concave synsepal with recurved margins, 3.5 mm long, 2.25 mm wide, each 3-veined; **petals** transversely lunate, shallowly concave below the broadly obtuse, ill-defined margin, 0.75 mm long, 1 mm wide, 3-veined; **lip** thick, subquadrate, 0.6 mm long, 0.75 mm wide, 0.5 mm deep, the apex broadly obtuse, concave anterior to the bicallous bar, with a large glenion, the dorsum with a single, erect, rounded, pubescent callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 0.75 mm wide, the anther and the bilobed stigma apical.

Imbabura: Buenos Aires, alt. 2300 m, Feb. 2003, *A. Hirtz & Family 8501* (Holotype: MO); C. Luer illustr 20856.

This species from northern Ecuador is allied to *Stelis multiflora* Luer & Hirtz from southwestern Ecuador. Both species produce crowded racemes of similar, small flowers in great abundance. Instead of several racemes shorter than the leaf, one or two exceedingly long racemes are produced. The leaves are narrow and longer in proportion to the ramicauls. The sepals, petals and lip are similar, except for the obtuse, instead of rounded apex of the lip, and the glenion is much larger. The proximity of the lateral sepals gives the appearance of section *Humboldtia.*

250. **Stelis entrichota** Luer & Hirtz, sp. nov.

Ety.: From the Greek *entrichotos*, "hairy," referring to the sepals.

Planta mediocris, ramicaulibus gracilis folio anguste elliptico petiolato longiore, racemis paucis multifloris folio longiore, sepalis similibus ovatis obtusis longipubescentibus, petalis transversis obtusis trinervis, et labello triangulato-subquadrato apice concavo obtuso distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 9-10 cm long, with a close, tubular sheath on the middle third, and 2 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, long-petiolate, 7-8 cm long including the petiole 2 cm long, the blade 1.2-1.4 cm wide, cuneate below into the petiole. **Inflorescence** 2-3 erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, 10-11 cm long including the peduncle ca. 3 cm long, subtended by a spathe 1 cm long, with an annulus below the abscission layer; floral bracts tubular, 2-3 mm long; pedicels 3 mm long; ovary 1.5 mm long; flowers purple-brown, **sepals** similar, long-pubescent within, ovate, obtuse, connate basally, 2 mm long, 2 mm wide, 3-veined, the lateral sepals also 2 mm long, 2 mm wide, 3-veined; **petals** transversely ovate, obtuse, 0.7 mm long, 1 mm wide, 3-veined, shallowly concave below the broadly obtuse, thickened, apical margin, transversely thickened across the middle, concave at the base; **lip** thick, subquadrangular, 0.8 mm long, 0.8 mm wide, 0.7 mm deep, concave anteriorly within the obtuse, apical margin, the bar with a longitudinal glenion, the dorsum filled with a broad, flat, microscopically pubescent callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: below Gualaquiza, alt. 900 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 27 July 2004, *A. Hirtz 8941* (Holotype: MO), C. Luer illustr. 20913.

This species is distinguished by two or three racemes crowded with many small flowers that eventually surpass the narrow, long-petiolate leaf. The sepals are similar, ovate and loosely long-pubescent as seen in *Stelis flexuosissima* Luer & Hirtz. The petals are obtuse, and the type-A lip has a longitudinal glenion.

251. **Stelis eumeces** Luer & Hirtz, sp. nov.

Ety.: From the Greek *eumekes*, "of good length," referring to the inflorescence.

Species haec *Stelis attenuatae* Lindl. similis, sed habitu majore, bracteis floralibus brevioribus differt.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 9-18 cm long, with a close, tubular sheath near the middle, and 2 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 12-19 cm long including an indistinct petiole 1-2 cm long, the blade 2.3-3.3 cm wide, cuneate below into the conduplicate base. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, 20-30 cm long including the peduncle 5-6 cm long, from an annulus near the base of the leaf, with a slender spathe 2.5-3 cm long; floral bracts thin, oblique, acute, 2-3 mm long; pedicels 2-3 mm long; ovary 2 mm long; **sepals** sensitive, sea green, faintly suffused with rose toward the base, very shortly pubescent within, ovate-triangular, subacute, connate basally, the dorsal sepal 3.5 mm long, 3 mm wide, 3-veined, the lateral sepals similar, 3 mm long, 3 mm wide, 3-veined; **petals** purple, thickly triangular, obtuse, 1 mm long, 1.25 mm wide, 3-veined, shallowly concave below the broadly obtuse, thickened, flattened, apical margin, transversely thickened across the middle, concave at the base; **lip** purple, thick, subquadrangular, 0.6 mm long, 1 mm wide, 0.8 mm deep, shallowly concave anteriorly with the apical margin thickened, obtuse, the bar with a glenion, the dorsum with a round, central callus contiguous with the glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Imbabura: Selva Alegre west of Otavalo, alt. ca. 2000 m, collected in 1979, flowered in cultivation at SEL, 5 July 1981, *C. Luer 6425* (Holotype: SEL).

This large species is similar to the Colombian *Stelis attenuata* Lindl., but differs from the latter with a much larger habit and short floral bracts. The floral bracts of *S. attenuata* are conspicuous and imbricating. The raceme of both species is very long, attenuated and congested. The sepals and petals are similar in size.

252. **Stelis eustylis** Luer & Hirtz, sp. nov.

Ety.: From the Greek *eustylis*, "well-formed column," referring to the gynostemium.

Species haec *Stelis columnaris* Lindl. affinis, sed planta caespitosa, sepalorum pilibus capitatis, petalis majoribus columnam labelloque includentis, et labelli glenio elongato differt.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1.5-3.5 cm long, enclosed by 3 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to obtuse, 3.5-8.5 cm long including a petiole 0.5-1.5 cm long, the blade 1.2-2.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, simultaneously several- to many-flowered raceme, 7-14 cm long including the peduncle 4-6 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** purple, expanded, densely short-pubescent with capitate hairs, broadly ovate, obtuse, connate less than 1 mm below the middle; the dorsal sepal 2.5 mm long, 2.6 mm wide, 3-veined, the lateral sepals 2.5 mm long, 2.75 mm wide, 3-veined; **petals** purple, thin, concave, transversely elliptical-oblong, the apex transverse with the margin slightly thickened, with the ends rounded, 1 mm long, 2 mm wide; **lip** purple, discoid, 1.25 mm long, 1.25 mm wide, 0.5 mm deep, the apex broadly rounded with a thin margin, shallowly concave anteriorly with a long glenion, the dorsum flat, the base broadly truncate, hinged to the base of the column; **column** stout, with the gynostemium elongate, 1.5 mm long, 1.5 mm wide across the stigmatic lobes, the foot obsolescent, the anther and the bilobed stigma apical.

Pichincha: near Lloa, alt. 2700 m, 27 Oct. 1979, *C. Luer, J. Luer & A. Hirtz 4353* (Holotype: SEL).

This species is similar to *Stelis columnaris* Lindl., a long-repent species found in nearby mountains of central Ecuador. It is distinguished from the latter by a caespitose habit with larger leaves; minutely pubescent sepals with capitate hairs instead of verrucae; and much larger petals that surround the column and lip. The lip is circular, discoid, and shallowly concave, with a long glenion. The shaft of the column is also elongate, but it is stouter, and the rostellar flap is shorter.

253. **Stelis graminosa** Luer & Hirtz, sp. nov.

Ety.: From the Latin *graminosus*, "grassy," referring to the habit.

Planta mediocris caespitosa, racemis duobus strictis congestis folio anguste elliptico exceedentibus, sepalis obtusis minutissime pubescentibus lateralibus in synsepalum convergentibus, petalis transversis trinervis, labello subquadrato obtuso antice leviter concavo ad dorsum unicalloso distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-8 cm long, enclosed by a close, tubular sheath from below the middle and another sheath above the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 7-8 cm long including the petiole ca. 1.5 cm long, the blade 1 cm wide, cuneate below into the petiole. **Inflorescence** 2 erect, subcongested, distichous, many-flowered racemes with most flowers open simultaneously, 13-16 cm long including the peduncle ca. 4 cm long, with a spathe 1 cm long, from the apex of the ramicaul; floral bracts oblique, acute, 2-2.5 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; flowers resupinate, bilabiate; **sepals** cream, suffused with rose basally, microscopically pubescent, the dorsal sepal ovate, obtuse, convex, 3.3 mm long, 2.3 mm wide, 3-veined, connate basally to the synsepal, the lateral sepals ovate, obtuse, convex, 2.5 mm long, 1.75 mm wide, 3-veined, semiconnate and in apposition; **petals** purple, transversely ovate, 0.6 mm long, 0.8 mm wide, 3-veined, broadly obtuse at the thickened, cellular-papillose apex, shallowly concave below an ill-defined transverse callus; **lip** purple, subquadrate, 0.4 mm long, 0.6 mm wide, 0.4 mm deep, the apex broadly rounded, the bar shallowly concave with a glenion, the dorsum with a small, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Carchi: below Maldonado toward Chical, alt. 1500 m, 15 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16027* (Holotype: MO).
Imbabura: Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4221* (MO).

Stelis graminosa, found at an altitude of 1500 meters in northwestern Ecuador, is similar to *S. creodantha* (also described herein) found at 2300 meters, but differs from the latter by narrowly elliptical leaves; usually two, simultaneous inflorescences exceeding the leaf; lateral sepals semiconnate and in apposition; and a single, rounded callus on the dorsum of the lip.

254. **Stelis hymenopetala** Luer & Endara, sp. nov.

Ety.: From the Greek *hymenopetalon*, "thin petal," referring to the membranous petals.

Planta parva caespitosa, racemo multifloro folio elliptico-obovato plus minusve duplolongiore, sepalis obtusis intus crassipubescentibus, petalis transversis membranaceis trinervis, et labello transverse oblongo ad apicem leviter concavo rotundo distinguitur.

Plant small, epiphytic, caespitose, roots slender. Ramicauls erect, stout, 8-12 mm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptic-obovate, obtuse to subacute at the apex, 2.5-4 cm long including an ill-defined petiole ca. 0.5 cm long, the blade 0.6-0.8 cm wide, narrowed below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme, 6-7 cm long including the peduncle 3-4 cm long, with several flowers open simultaneously, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 1.5 mm long; pedicels 1.5-2 mm long; ovary 0.75 mm long; flowers "brownish purple," **sepals** glabrous externally, coarsely pubescent within, the hairs thick, sometimes clavate, broadly ovate, obtuse, 2 mm long, 2 mm wide, 3-veined, connate below the middle; **petals** thin, concave, transversely oblong, the apex transverse with the margin not thickened, and with the ends rounded, 0.75 mm long, 1.4 mm wide, 3-veined; **lip** transversely oblong, 0.6 mm long, 1.1 mm wide, 0.8 mm deep, shallowly concave anteriorly with the apex broadly rounded, the bar with a shallow glenion, the dorsum pubescent, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Cotopaxi: between Quevedo and El Corazón, alt. 850-1000 m, 15 May 1980, *G. Harling & L. Andersson 19121* (Holotype: GB), C. Luer illustr. 20517.

This little, caespitose species lacks any distinctive morphological feature. The elliptical-obovate leaves are exceeded by a raceme with several flowers open simultaneously. It may be successively flowered, because on the single collection one raceme bears fruit and another bears several flowers. The rounded sepals are coarsely pubescent within with the hairs thick and occasionally clavate. The transverse petals are thin, concave and three-veined. The lip is transversely oblong, short and shallowly concave within the rounded apex.

255. **Stelis janus** Luer & Hirtz, sp. nov.

Ety.: From the Greek god Janus with two, opposite-facing faces.

Planta parva, racemo congestissimo disticho folio obovato apice rotundo duplolongiore, sepalis late ovatis obtusis, petalis transverse lunatis, labello brevi ecalloso apice rotundo distinguitur.

Plant small, epiphytic, caespitose. Ramicauls erect, stout 2.5 cm long, enclosed by two, loose, tubular sheaths. **Leaf** erect, coriaceous, obovate, round at the apex, 6 cm long including a petiole ca. 1 cm long, 2 cm wide, cuneate below into the petiole. **Inflorescence** a strict, erect, distichous, densely, many-flowered raceme, with most flowers open simultaneously and facing in opposite directions, 10 cm long including the peduncle 5 cm long, subtended by a spathe 3 mm long, from an annulus below the apex of the ramicaul; floral bracts broadly tubular, obtuse, 2.5 mm long; pedicels 1.5 mm long; ovary 2 mm long; flowers rose lavender, **sepals** minutely papillose within, broadly ovate, obtuse, convex, the dorsal sepal 3 mm long, 4 mm wide, incompletely 7-veined, connate 1 mm basally to the laterals, the lateral sepals 2.5 mm long, 3.5 mm wide, 5-veined; **petals** transversely lunate, thickened above the middle to the broadly rounded margin, 0.7 mm long, 1 mm wide, 3-veined; **lip** transversely oblong, 0.4 mm long, 0.8 mm wide, 0.7 mm deep, the margin thickened, broadly rounded, shallowly concave within, the bar broad with a glenion, the dorsum ecallous, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Morona-Santiago: Guarumales, alt. 1500 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 11 Jan. 2004, *A. Hirtz 8621* (Holotype: MO), C. Luer illustr. 20841.

This precise species is characterized by an obovate leaf and a twice longer inflorescence with a tightly packed, double-rowed raceme of opposite-facing flowers. The individual flowers are not extraordinary with minutely papillose, broadly ovate, obtuse, convex sepals; transversely lunate petals with a thickened margin; and a short lip with a rounded margin.

256. **Stelis lacunata** Luer & Endara, sp. nov.

Ety.: From the Latin *lacunatus*, "hollowed out," referring to the deeply concave lip.

Planta mediocris, racemo multifloro folio oblongo plus minusve excedenti, sepalis atropurpureis longipubiscentibus late ovatis, petalis crassis cum callo transversali, et labello ovoideo obtuso profunde concavo distinguitur.

Plant medium in size, epiphytic, ascending-caespitose, roots slender. Ramicauls stout, 3-4 cm long, enclosed by a loose, tubular sheath and another below. **Leaf** erect, coriaceous, elliptical-oblong, obtuse, 6-7.5 cm long including a petiole 5-7 mm long, the blade 12-15 mm wide, cuneate below into the petiole. **Inflorescence** an erect, subcongested, distichous, several- or many-flowered raceme, with many flowers open simultaneously, 6-8 cm long including the peduncle ca. 1 cm long, with a spathe 5 mm long, from near the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 3 mm long; ovary 2 mm long; flowers "purplish black;" **sepals** broadly ovate, broadly obtuse, glabrous externally, long-pubescent within, connate below the middle, 3-veined, the dorsal sepal 3.5 mm long, 3.5 mm wide, the lateral sepals 3 mm long, 3.5 mm wide; **petals** thick, transversely ovate, concave below a thick, obtuse margin, more deeply concave below a transverse callus, 1 mm long, 1.3 mm wide, 3-veined; **lip** thick, ovoid, 1.3 mm long, 1.3 mm wide, 1 mm deep, deeply concave within the broadly obtuse, apical margin, the bar shelf-like, cleft, with a low, round callus on the dorsum, the base broadly truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 1.25 mm wide, the stigmatic lobes and anther apical, the foot obsolescent.

Loja: Parque Nacional Podocarpus, above Nudo de Cajanuma, alt. 3000 m, 10 Apr. 1989, *J.E. Madsen 85972* (Holotype: AAU), C. Luer illustr. 20510.

This species is closely related to a sympatric species described herein as *Stelis madsenii*. Both species are known only from collections from southeastern Ecuador at a high altitude. *Stelis lacunata* differs from *S. madsenii* in obtuse leaves instead of subacute; larger, "purplish black" flowers in a congested raceme; and a deeply concave lip with a shelf-like bar.

257. **Stelis lepidella** Luer & Hirtz, sp. nov.

Ety.: From the Latin *lepidellus*, "pretty and little," referring to aspects of the plant.

Species parva caepitosa, racemo subflexuoso laxe paucifloro folio elliptico longipetiolato excedenti, sepalis ovatis obtusis subaequalibus, petalis semilunatis erosis, labello subcuneato obtuso concavo cum callo mediano ad medium et callo orbiculato ad dorsum distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, long-petiolate, 2.5-5 cm long including a slender petiole 1-2 cm long, the blade 0.9-1.2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, distichous, subflexuous, succeessively several-flowered raceme with 2-3 flowers open simultaneously, to 8 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** glabrous, green above the middle, purple below the middle, ovate, obtuse, connate basally; the dorsal sepal 5.5 mm long, 4.5 mm wide, 3-veined, the lateral sepals 5 mm long, 4 mm wide, 3-veined; **petals** purple, transversely lunate-triangular, the apex rounded, cellular-erose, shallowly concave on the thickened margin, shallowly concave below the margin, and sharply concave below a transverse callus, 1 mm long, 1.5 mm wide, 3-veined; **lip** purple, subovoid, 0.6 mm long, 0.8 mm wide, 0.5 mm deep, the apex obtuse with the margin thick, concave within, the bar prominent, bicallous centrally, the dorsum with a central, round callus, the base truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Zamora-Chinchipe: along new road east of Loja, east of the pass, alt. 2250 m, 25 Jan. 1992, *C. Luer, J. Luer, P. & A. Jesup & A. Hirtz 16163* (Holotype: MO).

This little species is another of innumerable new species of orchids found around the famous pass east of Loja. It is distinguished by a caespitose habit with elliptical, long-petiolate leaves, and a loose, flexuous, several-flowered raceme of proportionately large, colorful flowers longer than the ramicauls. The sepals are ovate and glabrous. The lunate petals are large with the thick margin cellular-erose. The lip is obtuse with a prominent bar and a round callus on the dorsum.

258. **Stelis levicula** Luer, sp. nov.

Ety.: From the Latin *leviculus*, "trifle, worthless," referring to aspects of the plant.

Species perparva caepitosa, racemo subflexuoso laxe paucifloro folio anguste elliptico excedenti, sepalis glabris ovatis obtusis subaequalibus, petalis semilunatis trinervis, labello subcuneato obtuso leviter concavo cum orbiculato proportione grandi ad dorsum distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 10-12 mm long, enclosed by 2 ribbed, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 15-25 mm long including a slender petiole ca. 5 mm long, the blade 4-5 mm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, distichous, subflexuous, successively several-flowered raceme with 2-3 flowers open simultaneously, to 6 cm long including the peduncle 2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** glabrous, dull light gray-brown, the dorsal sepal ovate, obtuse, 2.5 mm long, 3 mm wide, 3- or 5-veined, the lateral sepals ovate, oblique, 2.25 mm long, 2.25 mm wide, 3-veined; **petals** dull white, transversely lunate-triangular, the apex obtuse with the margin thick, shallowly concave below, sharply concave below a transverse callus across the center, 0.8 mm long, 1 mm wide, 3-veined; **lip** dull white, subovoid, 0.5 mm long, 0.8 mm wide, 0.5 mm deep, the apex obtuse with the margin thick, concave within, the bar with a center notch and a few microscopic hairs, and a descending, shallow glenion, the dorsum with a proportionately large hemispherical, microscopically pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Morona-Santiago: forest remnant near the Paute dam site, alt. 1550 m, 23 Jan. 1989, *C. Luer, J. Luer, P. & A. Jesup 14067* (Holotype: MO).

This little species has no significant feature, except that the dorsal sepals of flowers on a single plant may have five or seven veins. The outer veins are sometimes absent, sometimes incomplete, and sometimes complete by originating at the base of the inner pair of veins.

A few small, pale flowers are produced simultaneously in a loose, successively flowered raceme from a hair-like rachis. The sepals are ovate and glabrous. The lunate petals have a thick margin and a transverse callus, and the lip is obtuse with a proportionately large, rounded callus on the dorsum.

259. **Stelis lilliputana** Luer & F.Werner, sp. nov.

Ety.: Named for the Lilliputan empire, an eighteenth century creation of Jonathan Swift.

Planta parva ascendens radicibus carnosis, racemis quam foliis brevioribus, sepalis subequalis nonexpansis, petalis ad apicem incrassatis, labello microscopice pubescenti transverse ovato obtuso..lh8

Plant small, epiphytic, densely caespitose-ascending; roots proportionately thick. Ramicauls erect, fascicled with common sheaths, 8-10 mm long, enclosed by 1-2 loose, tubular sheaths, acuminate at the apex. **Leaf** erect, coriaceous, elliptical, acute, petiolate, 20-25 mm long including the petiole 2-3 mm long, 5 mm wide, contracted below into the petiole. **Inflorescence** an erect, suddense, subflexuous, distichous, several-flowered raceme with most flowers open only partially, 10-15 mm long including the peduncle ca. 2 mm long, from an annulus below the apex of the ramicaul within the sheath; floral bracts oblique, acuminate, 2 mm long; pedicels 0.5 mm long; ovary 0.5 mm long; **sepals** dull white, not widely spread, diffusely cellular pubescent-papillose, broadly ovate, obtuse, slightly convex, the dorsal sepal 1.75 m long, 1.9 mm wide, 3-veined, connate nearly 1 mm, the lateral sepals 1.5 mm long, 1.5 mm wide, 3-veined; **petals** thick, transversely ovate, microscopically pubescent, 0.6 mm long, 0.75 mm wide, 3-veined at the base, the apex broadly rounded with a prominent thickening at the center, with a transverse callus, concave below; **lip** microscopically pubescent, thick, transversely ovate, shallowly concave

within the thickened margins of the transversely obtuse apex, 0.4 mm long, 0.75 mm wide, 0.4 mm deep, the bar with a glenion from a low, rounded dorsal callus, the base truncate, attached to the base of the column; **column** semiterete, 0.5 mm long, 0.75 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Zamora-Chinchipe: between Loja and Zamora, near Estación Científica San Francisco, alt.2200 m, 1 Nov. 2004, *F.A. Werner 1306* (Holotype: QCNE; Isotypes: MO,), C. Luer illustr. 20981.

This species, apparently rare and endemic near the Loja-Zamora pass in southeastern Ecuador, is distinguished by small, ascending, fascicled ramicauls and proportionately thick roots. The short raceme of tiny, semiclosed flowers ("wool-white," as described by the collector) open only partially. The petals are broadly margined with a thick, protuberant knob at the apex. The lip is transverse with a broadly obtuse apex.

260. **Stelis limbata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *limbatus*, "with a different border," referring to the sepals.

Planta parva caepitosa, racemo sublaxe plurifloro folio elliptico subacuto longiore, bracteis floralibus conspicuis, sepalis glabris late ovatis crassilimbatis, petalis suborbiculatis membraneis univenosis, labello late subquadrato antice leviter concavo callo centrali canaliculato distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1-2 cm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 2.5-4 cm long including a petiole ca. 1 cm long, the blade 1-1.3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, sublax (extremely congested toward the apex, successively several-flowered raceme with 6-7 flowers open simultaneously, 8-10 cm long including the peduncle 2.5-4 cm long, from a spathe 7 mm long below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 3 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** purple with yellow border, with the margin thick and concave at the tips, glabrous, broadly ovate, obtuse, connate basally, the dorsal sepal 2.5 mm long, 2.25 mm wide, 3-veined, the lateral sepals 2 cm long, 2 cm wide, 3-veined; **petals** purple, membranous, suborbicular, shallowly concave, the rounded apex with a thin margin, 1 mm long, 1.25 mm wide, 1-veined; **lip** purple, thickly subquadrate, 0.6 mm long, 0.9 mm wide, 0.5 mm deep, the apex broadly rounded, with a small, indistinct central apiculum, shallowly concave above the margin, the bar divided medially to form a glenion continuous with a channeled process on the dorsum, with a zone of microscopic hairs arranged in multiple, parallel rows, the base truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 1 mm wide, the foot obsolescent, the anther and stigmatic lobes apical.

Imbabura: Mojanda, alt. 3000 m, Nov. 1983, *A. Hirtz 1355* (Holotype: MO), C. Luer illustr. 20872.

This species from northwestern Ecuador is characterized by a small, caespitose habit with racemes exceeding the elliptical, subacute leaves. The floral bracts are conspicuous and become successively closer together until they become overlapping with aborted flowers at the apex. The obtuse sepals are widely expanded, but the margins are thick, especially at the apices. These thick borders are yellow while the rest of the flower is purple. The petals are thin, round and single-veined. The lip is transverse with a patch of microscopic hairs arranged in parallel rows present at the base.

261. **Stelis litensis** Luer & Hirtz, sp. nov.

Ety.: Named for the community of Lita, near where the species was collected.

Species mediocris caepitosa, racemo sublaxe plurifloro successivifloro folio elliptico acuto plus minusve aequilongo, sepalis glabris late ovatis, petalis carnosis rotundis, labello subquadrato, apice rotundo leviter concavo ad dorsum unicalloso distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8-11 cm long, the middle third enclosed by a close, tubular sheath, with 2-3 tubular sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 7.5-9.5 cm long including a petiole ca. 1.5 cm long, the blade 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, sublax, successively several-flowered raceme with 1-2 flowers open simultaneously, 8-10 cm long including the peduncle 3-4 cm long, old racemes usually persisting, from a slender spathe 1.5 cm long below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 2 mm long; pedicels 2 mm long; ovary 0.5 mm long; **sepals** light yellow, glabrous, broadly ovate, obtuse, convex, connate nearly to the middle, the dorsal sepal 3.5 mm long, 4 mm wide, 3-(incompletely 5-)veined, the lateral sepals oblique, 2.25 cm long, 3 cm wide, 3-veined; **petals** yellow-green, fleshy, semiorbicular, shallowly concave below a thick, rounded margin,

concave below a low transverse callus, 0.8 mm long, 1 mm wide, 3-veined; **lip** yellow-green, thickly subquadrate, 0.6 mm long, 0.8 mm wide, 0.6 mm deep, the apex thickly rounded, shallowly concave above the margin, the bar divided medially to form a glenion continuous with a round, dorsal callus, the base truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 1 mm wide across pedunculate stigmatic lobes, the foot obsolescent, the anther and stigma apical.

Esmeraldas: forest west of Lita, alt. 700 m, 12 Jan. 1992, *C. Luer, J. Luer, A. & X. Hirtz et al. 15562* (Holotype: MO).

This species from lowland northwestern Ecuador is characterized by acute, elliptical leaves about as long as their slender ramicauls. The racemes, successively few flowered, eventually reach the length of the leaves. The sepals are broadly ovate and convex. The petals are rounded and three-veined, and the lip is thickly rounded with a round callus on the dorsum.

262. **Stelis lorenae** Luer, sp. nov.

Ety.: Named of its collector, Lorena Endara A. of Quito, Ecuador, presently a Ph.D. candidate at the University of Florida in Gainesville, Florida.

Planta parva longissime repens, racemo grandibracteata laxe plurifloro folio anguste ovato longiore, sepalis late ovatis obtusis, sepalo dorsali quinquenervo, petalis transversis trinervis, labello subtriangulari antice profunde concavo distinguitur.

Plant small, epiphytic, long-repent, rhizome slender, 3-5 cm long between ramicauls, roots slender. Ramicauls slender, 4-6 cm long, with a tubular sheath from below the middle and another sheath below. **Leaf** erect, thinly coriaceous, narrowly ovate, acute, 3-4 cm long including a petiole 0.5-1 cm long, the blade 0.5-0.8 cm wide, cuneate below into the petiole. **Inflorescence** an erect, flexible, loosely several-flowered raceme, with few flowers open simultaneously, to 11 cm long including the peduncle 2-3 cm long, with a spathe ca. 0.9 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 1.5-2 mm long; ovary 1.5 mm long; flowers white, suffused with purple, **sepals** expanded, glabrous, at most microscopically cellular, ovate, obtuse, connate basally, the dorsal sepal 3 mm long, 3 mm wide, 5-veined, the lateral sepals oblique, 2.6 mm long, 2.5 mm wide, 4-veined; **petals** transversely elliptical, concave below the broadly rounded, thickened, apical margin, 1.2 mm long, 1.9 mm wide, 3-veined; **lip** thick, orbicular-triangular, 0.6 mm long, 1.2 mm wide, 1 mm deep, concave anteriorly within the broadly rounded apex, the bar bitumidous, recessed at the center, the dorsum shallowly concave with a narrow callus across the base, the base broadly truncate, hinged to the column; **column** stout, 1 mm long and wide, the foot obsolescent, the anther and the bilobed stigma apical.

Imbabura: Reserva Biológica Los Cedros, trail to Cerro de la Plata, alt. 2600 m, 2003, *L. Endara 1001* (Holotype: QCA; Isotype: MO), C. Luer illustr. 20513,

This delicate, little species from the Los Cedros Reserve in west-central Ecuador, is distinguished by the long-repent, vinelike habit. The flexible, loosely flowered raceme bears conspicuous floral bracts. The sepals are broadly ovate; the petals are three-veined; and the triangular lip is concave before the bitumidous bar.

263. **Stelis madsenii** Luer & Endara, sp. nov.

Ety.: Named for J.E. Madsen, Danish collector in southern Ecuador, co-collector of this species.

Planta parva mediocrisve, racemo plurifloro folio elliptico plus minusve aequilongo, sepalis ovatis intus minutissime pubescentibus, petalis cum callo transversali, labello ad apicem subacuto crasso cum callo dorsali distinguitur.

Plant small to medium in size, epiphytic, caespitose, roots slender. Ramicauls stout, 1.5-5 cm long, enclosed by a loose, tubular sheath and another sheath below. **Leaf** erect, coriaceous, elliptical, subacute, 4-6.5 cm long including a petiole ca. 0.5 cm long, the blade 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, loose, subflexuous, several-flowered raceme, with most flowers open simultaneously, 4-9 cm long including the peduncle 1.5-3 cm long, with a spathe 0.7 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 1 mm long; ovary 1 mm long; flowers green to brown, **sepals** ovate, obtuse, glabrous externally, minutely short-pubescent within, connate basally, 3-veined, the dorsal sepal 2 mm long, 1.75 mm wide, the lateral sepals 1.6 mm long, 1.6 mm wide; **petals** transversely ovate-semilunate, concave below the thick, rounded, apical margin, and concave below the transverse callus, 0.75 mm long, 1 mm wide, 3-veined; **lip** thick, orbicular-triangular, 0.6 mm long, 0.9 mm wide, 0.5 mm deep, concave anteriorly, the apex subacute with a thick margin, the bar with a glenion, the dorsum concave with a rounded callus, the base broadly truncate, hinged to the column; **column** stout, 1 mm long and wide, the foot obsolescent, the anther and bilobed stigma apical.

Loja: Parque Nacional Podocarpus, above Nudo de Cajanuma, alt. 2800-3000 m, 6 Sept. 1988, *J.E. Madsen & L. Ellemann 75234* (Holotype: AAU; Isotype: QCA), C. Luer illustr. 20488; same collection data, *J.E. Madsen et al. 75257* (AAU; QCA); Nudo de Sabanilla, road to Yangana, alt. 2500 m, *G. Harling & L. Andersson 21686* (GB); same area, alt. 2900 m, 23 Feb. 1985, *B. Øllgaard, S. Lægaard, K Thomsen, J. Korning & T. Illum 57997* (AAU).

This species is apparently confined to southeastern Ecuador where it is sympatric with *Stelis lacunata* Luer & Endara (described herein), a closely allied species also described herein. The former is characterized by a ramicaul shorter than the leaves, and a raceme usually about as long as the leaves. It is loosely several-flowered with proportionately large floral bracts. The petals, concave below a thick margin and below a transverse callus are three-veined. The lip is concave, but not deeply so, subacute with a thick margin, and a bar with a glenion. The four collections cited above differ consistently from *S. lacunata*.

264. **Stelis mammillata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *mammillatus*, "mammillate," referring to the bitumerous callus of the lip.

Planta mediocris caespitosa, racemo elongato stricto congestissimo foliis ellipticis longiore, floribus parvis, sepalis late ovatis obtusis marginatis, petalis flabellatis et labello subquadrato obtuso nonconcavo cum callo bimammillato distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, fasciculate, 7-10 cm long, the middle third enclosed by a loose, tubular sheath and another sheath at the base. **Leaf** erect, coriaceous, elliptical, subacute to acute, 4-6 cm long including a petiole ca. 1 cm long, the blade 8-12 mm wide, cuneate below into the petiole. **Inflorescence** 1-2 erect, strict, densely congested, simultaneously many-flowered racemes, 10-13 cm long including the peduncle 1-2 cm long, from an annulus below the apex of the ramicaul, with a spathe 5-6 mm long; floral bracts oblique, acute, 1.5 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** expanded, purple externally, gray-purple within, broadly ovate, broadly obtuse, connate below the middle, the dorsal sepal 2.5 mm long, 2.5 mm wide, 5-veined, the lateral sepals 2 mm long, 2.25 mm wide, 4-veined; **petals** purple, transversely obovate, broadly rounded at the apex with a thickened margin, shallowly concave, 0.5 mm long, 0.75 mm wide, 3-veined; **lip** purple, thick, transversely oblong-ovoid, 0.6 mm long, 1 mm wide, 0.6 mm deep, the apex rounded, the bar with a glenion, not concave anteriorly, the margin with a protuberant, rounded swelling on each side of the glenion, dorsum with a low, rounded callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.9 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Carchi: El Carmelo, alt. 2700 m, 17 May 1981, *C. Luer, J. Luer & A. Hirtz 6290* (Holotype: SEL).

This species of northernmost Ecuador is distinguished by a densely caespitose habit of slender ramicauls that are longer than the elliptical leaves; a strict, very dense, simultaneously many-flowered raceme of small, purple flowers; broadly obtuse sepals; flabellate petals with a thickened margin; and a transverse, obtuse lip with a rounded callus on the dorsum flanked by a pair of mammillate calli on the margin of the bar.

265. **Stelis micropetala** Luer & Hirtz, sp. nov.

Ety.: From the Greek *micropetalon*, "with very small petals," for obvious reasons.

Planta mediocris caespitosa, racemis duobus strictis congestis multifloris folio anguste elliptico longioribus, sepalis perparvis late ovatis obtusis marginatis, petalis proportione minutis trinervis et labello obtuso distinguitur.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 5-6 cm long, the upper half enclosed by a tubular sheath and 2-3 tubular sheaths on the lower half. **Leaf** erect, coriaceous, linear-elliptical, acute, 8-12 cm long including an indistinct petiole 1-1.5 cm long, the blade 0.9-1.2 cm wide, gradually narrowed below to the base. **Inflorescence** 1-2 erect, strict, congested, simultaneously many-flowered racemes, 10-14 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul, with a spathe 8-10 mm long; floral bracts broadly tubular, 1 mm long; pedicels 1 mm long; ovary 0.8 mm long; flowers light green, **sepals** expanded, broadly ovate, broadly obtuse, thinly margined, connate below the middle, the dorsal sepal 1.75 mm long, 1.75 mm wide, 3-veined, the lateral sepals 1.5 mm long, 1.5 mm wide, 3-veined; **petals** transversely obovate, broadly rounded at the apex with a thickened margin, shallowly concave, 0.5 mm long, 0.5 mm wide, 3-veined; **lip** thick, transversely oblong-ovoid, 0.5 mm long, 0.75 mm wide, 0.5 mm deep, the apex rounded to

obtuse, shallowly concave, the bar divided into a glenion that is continuous with a round callus on the dorsum, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Morona-Santiago: near Macas, alt. 600 m, 9-11 Oct. 1999, *A. Hirtz, X. Hirtz, M. & H. Evans 6660* (Holotype: MO), C. Luer illustr. 20870.

Although somewhat larger, this species rivals *Stelis minimiflora* Schltr. in small size both vegetatively and florally. *Stelis micropetala*, here described, is characterized by one or two racemes of numerous, tiny flowers that exceed the narrow leaves. The sepals are obtuse and three-veined. The distinctly three-veined petals are smaller than the lip and the column. The lip is standard type-A. The petals of *S. minimiflora* are single-veined, and the lip is a variation of type-B (Luer, 2001).

266. **Stelis milagrensis** Luer & Hirtz, sp. nov.

Ety.: Named for the Plan de Milagro in southeastern Ecuador, where the species was collected.

Planta parva caespitosa, racemo multifloro congesto folio elliptico excedenti, bracteis floralibus conspicuis, sepalis suborbicularibus late expansis quasi liberis, petalis lunatis, et labello subdiscoideo apice rotundo minute apiculato distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-3 cm long, enclosed by a loose, tubular sheath from below the middle and 2 sheaths below the middle. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 5.5-6.5 cm long including a petiole 0.5-0.8 cm long, the blade 1.5-1.8 cm wide, cuneate below into the petiole. **Inflorescence** an erect, strict, congested, mostly simultaneously many-flowered raceme, to 13 cm long including the peduncle ca. 5 cm long, from an annulus below the apex of the ramicaul and within the sheath; floral bracts infundibular, oblique, acute, 4 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** lavender externally, olive within, expanded and slightly convex, glabrous, broadly elliptical or suborbicular, broadly obtuse, connate basally to form a shallow cup, the dorsal sepal 4 mm long, 4 mm wide, 5-veined, the lateral sepals 3 mm long, 3.5 mm wide, 4-veined; **petals** green, transversely lunate, broadly rounded at the apex with a narrowly thickened margin, shallowly concave below, 1 mm long, 1.6 mm wide, 3-veined; **lip** green, suborbicular, 0.8 mm long, 1.3 mm wide, 1 mm deep, shallowly concave within the broadly rounded apical margin, minutely apiculate, the bar with a superficial glenion extending from a densely pubescent area at the base, the dorsum truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.3 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: Plan de Milagro, alt. 2000 m, collected and cultivated at Ecuagenera, Gualaceo, flowered in cultivation 27 July 2004, *A. Hirtz 8731* (Holotype: MO), C. Luer 20902.

This small species from southeastern Ecuador is characterized by elliptical leaves that are considerably longer than short ramicauls clad in loose sheaths, and exceeded by a congested, many flowered raceme. The sepals are round and expanded and more or less overlap. The petals, lip, and column are similar to the larger *Stelis jamesonii* Lindl. The lip is round and shallow with a superficial glenion extending down the front of the bar from a densely pubescent zone at the base. In addition, the margin of the lip is minutely apiculate.

267. **Stelis misera** Luer & Hirtz, sp. nov.

Ety.: From the Latin *miser*, "wretched," referring to the habit and flowers.

Planta parva misera caespitosa, racemo minutifloro secundo congesto folio angusto subaequilongo, sepalis late ellipticis intus pubescentibus, petalis flabellatis trinervis, et labello ovoideo obtuso transverse tricalloso ad basim unicalloso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, fasciculate, 5-8 cm long, enclosed by two tightly fitting tubular sheaths and another at the base. **Leaf** erect, coriaceous, elliptical, acute, 5-6.5 cm long including a petiole ca. 1 cm long, the blade 5-6 mm wide, narrowly cuneate below into the petiole. **Inflorescence** 1-2 erect, strict, densely congested, secund, simultaneously many-flowered racemes, 5-6 cm long including the peduncle ca. 1 cm long, from an annulus below the apex of the ramicaul, with a spathe 5-6 mm long; floral bracts oblique, acute, 1.5 mm long; pedicels 0.5 mm long; ovary 0.5 mm long; **sepals** purple, not expanded, glabrous externally, pubescent within, broadly elliptical, broadly obtuse, connate basally, the dorsal sepal 1.25 mm long, 1.25 mm wide, 3-veined, the lateral sepals 1 mm long, 1 mm wide, 3-veined; **petals** light green, transversely obovate, broadly obtuse at the apex with a thickened margin, shallowly concave, 0.5 mm long, 0.5 mm wide, 3-veined; **lip** light green,

oblong-ovoid, obtuse, 0.6 mm long, 0.5 mm wide, 0.3 mm deep, shallowly concave before the obscurely tripartite bar, the dorsum with a single, round, midline callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the stigma proportionately large, apical, the stigma bilobed.

Loja: old road between El Cisne and Puertovelo, alt. 1500 m, 1 Feb. 2003, *A. Hirtz, E. Sánchez & W. Bautz 8488* (Holotype: MO), C. Luer 20846.

This species is apparently endemic in semiarid southwestern Ecuador. It is characterized by a small, densely caespitose habit of slender ramicauls that are longer than narrowly elliptical leaves; one or two congested, secund, simultaneously many-flowered racemes of minute flowers; obtuse sepals that do not spread; flabellate petals with a thickened margin; and a minutely oblong-ovoid lip with a rounded callus on the dorsum.

268. **Stelis molaui** Luer & Endara, sp. nov.

Ety.: Named for Danish U. Molau, co-collector of this species.

Planta mediocris, racemis paucis multifloris folio ovato multilongioribus, sepalis ovatis intus pubescentibus, petalis transversis tenuibus trinervis, labello suborbiculato profunde concavo distinguitur.

Plant medium in size, epiphytic, ascending-caespitose, roots slender. Ramicauls slender, erect, 10-14 cm long, with a tubular sheath above the middle and 2-3 imbricating sheaths toward the base. **Leaf** erect, coriaceous, ovate, acute, 7-8 cm long including a petiole 1-1.2 cm long, the blade 1.5-1.8 cm wide in the dry state, contracted below into the petiole. **Inflorescence** 3-5 erect, congested, distichous, many-flowered racemes, 13-15 cm long including the peduncle 1-3 cm long, with a spathe 1.5 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 0.75 mm long; flowers pale yellow; **sepals** ovate, obtuse, glabrous externally, diffusely pubescent within, connate basally, 3-veined, the dorsal sepal 3 mm long, 2 mm wide, the lateral sepals 2.75 mm long, 2 mm wide; **petals** transversely elliptical, thin, concave below the broadly rounded, narrowly thickened margin, 0.5 mm long, 1.25 mm wide, 3-veined; **lip** thick, orbicular, 0.8 mm long, 0.8 mm wide, 0.8 mm deep, deeply concave anteriorly, the apex thin and rounded, with the margin thin, the bar shallowly shelf-like, deeply incised centrally, the dorsum with a callus at the base, the base broadly truncate, hinged to the column; **column** stout, 0.8 mm long, 0.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Pichincha: old road between Quito and Santo Domingo, southwest of Chiriboga, alt. 2200 m, 22 Mar. 1979, *B. Løjtnant & U. Molau 11292* (Holotype: AAU; Isotypes: GB, QCA), C. Luer illustr. 20504.

This species is apparently rare. It is known from a single collection from an area that has been more frequently collected than any other in Ecuador. With several, long, slender, many-flowered racemes and sepals densely pubescent within, this species resembles *Stelis mononeura* Lindl., but it is easily distinguished from the latter by thin, narrowly transverse, three-veined petals, and an orbicular lip.

269. **Stelis monicae** Luer & Hirtz, sp. nov.

Ety.: Named for Monica de Navarro of Quito, Ecuador, co-collector of this species.

Planta mediocris, racemis saepe duobus multifloris folio anguste ovato duplolongioribus, sepalis ovatis intus pubescentibus, petalis transverse ellipticis, labello ovoideo profunde concavo ad apicem late triangulari cum lamina bifida distinguitur.

Plant medium in size, epiphytic, densely caespitose, roots slender. Ramicauls slender, erect, 7-10 cm long, with a tubular sheath above the middle and 2-3 imbricating sheaths toward the base. **Leaf** erect, coriaceous, narrowly ovate, acute, 7-9 cm long including a petiole 1-1.2 cm long, the blade 1.2-1.5 cm wide, contracted below into the petiole. **Inflorescence** 1-2 erect, congested, distichous, many-flowered racemes, 12-15 cm long including the peduncle 3-4 cm long, with a spathe 1 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 1.5 mm long; ovary 1 mm long; flowers light yellow; **sepals** ovate, obtuse, glabrous externally, sparsely short-pubescent within, 3-veined, the dorsal sepal 2.5 mm long, 2 mm wide, connate to the laterals for 0.5 mm, the lateral sepals 2.2 mm long, 1.8 mm wide, antrorse, free between; **petals** transversely elliptical, 0.5 mm long, 1.3 mm wide, concave below the thickened margin, with numerous silver crystals, 0.5 mm long, 1.25 mm wide, 3-veined; **lip** thick, ovoid, 0.8 mm long, 0.6 mm wide, 0.5 mm deep, deeply concave anteriorly, the apex triangular, protruding, the bar a transverse shelf, deeply incised centrally, the dorsum with a pubescent callus at the base, the base broadly truncate, hinged to the column; **column** stout, 1 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Bolívar: west of Salinas and La Palma, alt. 1250 m, 12 Mar. 1991, *C. Luer, J. Luer, A. Hirtz, M. Navarro et al. 15013* (Holotype: MO).

This species is similar to *Stelis lanata* Lindl. from which it differs with a densely caespitose habit instead of ascending, and the leaves are narrowly ovate instead of elliptical. Facing to one side, the flowers are held upward in a congested raceme. Instead of densely villous within, the sepals are sparsely short-pubescent. The petals are proportionately larger, considerably wider than the length of the lip, instead of being narrower than the lip. The apex of the lip is broadly triangular, as wide as the lip, instead of one-third the width of the lip.

270. **Stelis moniligera** Luer & Hirtz, sp. nov.

Ety.: From the Latin, *moniliger*, "necklace bearing," referring to the row of minute, bead-like flowers.

Planta parva mediocrisve, racemis multifloris folio elliptico, floribus perparvis cleistogamis, sepalis ovatis obtusis intus papillosis, petalis transversis tenuibus trinervis, labello breve suborbiculato.

Plant small or medium in size, epiphytic, caespitose, roots thick. Ramicauls stout, erect, 1-1.17 cm long, enclosed by a tubular sheath above the middle and 2-3 imbricating sheaths toward the base. **Leaf** erect, thickly coriaceous, elliptical, obtuse, 2.5-4 cm long including a petiole ca. 0.5 cm long, the blade 1 cm wide, contracted below into the petiole. **Inflorescence** an erect, congested, secund, many-flowered raceme of cleistogamous flowers, 10-25 cm long including a peduncle 5-13 cm long, with the spathe fugacious, from near the apex of the ramicaul; floral bracts tubular, acute, 2.5-3 mm long; pedicels 1-1.5 mm long; ovary 3 mm long below, 1 mm long above; flowers purple; **sepals** fleshy, broadly ovate, obtuse, minutely papillose within with thickened margins, glabrous externally, connate basally, 3-veined, the dorsal sepal 2 mm long, 25 mm wide, the lateral sepals 2 mm long, 2 mm wide; **petals** transversely oblong, thin, concave below the broadly rounded, narrowly thickened margin, 1 mm long, 1.5 mm wide, 3-veined; **lip** thick, suborbicular, 0.6 mm long, 1.5 mm wide, 1.2 mm deep, concave anteriorly within the thin-margined, rounded apex, the bar reclining with an elongated glenion, the dorsum or base minutely pubescent, the base broadly truncate, hinged to the column; **column** stout, 1.5 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Carchi: Bolívar, above La Paz, alt. 3000 m, 18 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. del Hierro 18744* (Holotype: MO).

This species from a high altitude in northern Ecuador is characterized by a raceme of tiny, cleistogamous, spherical, purple flowers in a row. The small plant is coarse with rigid, fleshy leaves that are longer than their short, stout peduncles. The central apparatus fills the interior of the flower within the closed sepals.

271. **Stelis nikiae** Luer & Hirtz, sp. nov.

Ety.: Named for Nicole "Niki" Hirtz, daughter of Ximena and Alex, co-collector of this species.

Planta mediocris grandisve plusminusve prolificans, racemo multifloro successivifloro quam folio elliptico petiolato multilongiore, sepalis ovatis glabris, petalis transversis lunatis, labello subcuneiformi callo transverso protuberanti distinguitur.

Plant medium to large in size, epiphytic, ascending-prolific, roots slender. Ramicauls relatively stout, erect, 10-18 cm long below, 4 cm long above, with a tubular sheath from below the middle and 2-3 imbricating sheaths toward the base. **Leaf** erect, coriaceous, elliptical, acute, 8-11.5 cm long including a petiole 1-1.5 cm long, the blade 2-3 cm wide cuneate below into the petiole. **Inflorescence** an erect, distichous, subdense, successively many-flowered raceme, to 18 cm long including the peduncle 3 cm long, 2-3 flowers open simultaneously, and capsules forming below, with a spathe 1-1.3 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 4-6 mm long; pedicels 2.5 mm long; ovary 2.5 mm long; **sepals** dark purple-brown, ovate, convex, obtuse, glabrous, connate basally, the dorsal sepal 4 mm long, 3 mm wide expanded, faintly 5-veined, the apex acute, recurved, the lateral sepals 3.5 mm long, 1.75 mm wide, 3-veined; **petals** lighter purple-brown, transversely lunate, shallowly concave below the broadly rounded, thickened margin, 1 mm long, 2 mm wide, 3-veined; **lip** colored as the petals, thick, cuneate, 1 mm long, 0.75 mm wide, 1 mm deep, the bar protuberant, bitumidous, shallowly incised centrally, shallowly concave below, the apex obtuse, with the margin thin, the dorsum with a single, central callus, the base broadly truncate, hinged to the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Tungurahua: near Volcán Altar, road above Penipe, alt. 3000 m, 10 Apr. 2004, *A. Hirtz, Ximena, Nikki & Samantha Hirtz 8702* (Holotype: MO), C. Luer illust. 20835.

This species is apparently rare, known from only the original collection from a remote area on Volcán Altar. It is characterized by sometimes prolific ramicauls, a petiolate, elliptical leaf, and a slowly successively flowered raceme with both fruit and simultaneous flowers. The floral bracts are conspicuous; the acute tips of the sepals recurve; and the proportionately large, transversely callous petals and lip with a protruding bar protrude from the plane of the sepals.

272. **Stelis ninguida** Luer & Dalström, sp. nov.

Ety.: From the Latin *ninguidus*, "snowy," referring to the snow white flowers.

Planta grandis ramicaulibus foliis acutis longioribus, racemis multifloris foliis plus minusve aequilongis, floribus niveis sepalis obtusis multinervatis, labelli apici latemarginato distinguitur.

Plant large, epiphytic, densely caespitose; roots slender. Ramicauls erect, 18-20 cm long, with a close, tubular sheath from below the middle and another 1-2 from the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, petiolate, 13-14 cm long including a petiole ca. 2 cm long, the blade 1.8-2.5 cm wide, cuneate below into the petiole. **Inflorescence** 1-2 erect, congested, secund, many-flowered racemes with many flowers open simultaneously, 12-15 cm long including the peduncle 4-5 cm long, from an annulus below the apex of the ramicaul, with a spathe 11-12 mm long; floral bracts dilated, acute, 3 mm long; pedicels 2 mm long; ovary 1.5 mm long; flowers snow white, **sepals** glabrous, broadly ovate, obtuse, irregularly 7-veined, flat, connate below the middle, the dorsal sepal 5 mm long, 5.5 mm wide, the lateral sepals slightly oblique, 4.5 mm long, 4.75 mm wide, somewhat smaller toward the lip of the raceme; **petals** transversely triangular, the apex broadly rounded with a broad, thick margin, concave below a transverse callus, 1.3 mm long, 2 mm wide, 3-veined; **lip** thickly subquadrate, 0.9 mm long, 1.3 mm wide, 1 mm deep, the bar with a shallow circular glenion in the center above the broad, thick margin of the rounded apex, the dorsum with a large, round callus, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1 mm long, 1.5 mm wide, with the anther and the stigmatic processes apical.

Sucumbíos: ridge above La Bonita, alt. 2300 m, 15 Mar. 1996, *S. Dalström, S. Ingram & K. Ferrell-Ingram 2163* (Holotype: MO), C. Luer illustr. 20689.

Vegetatively, this species, apparently endemic in northernmost Ecuador, is similar to *Stelis striolata* Lindl.: acute, narrowly elliptical, petiolate leaves borne by much longer ramicauls, and more or less equaled by one or two racemes. The flowers are relatively large and snow white. The sepals are broadly ovate, and the petals are thickened with a transverse callus. The apex of the lip is broad, rounded and flattened anteriorly, and a large, round callus nearly fills the dorsum.

273. **Stelis obtecta** Luer & Dalström, sp. nov.

Ety.: From the Latin *obtectus*, "hidden," referring to the ramicaul covered by sheaths.

Species haec *Stelis lindenii* Lindl. similis, sed habiu minore, ramicaulibus vaginibus obtectis, bracteis floralibus minoribus, sepalis minoribus leviter convexis et petalis flabellatis tenuioribus differt.

Plant large, epiphytic, densely caespitose; roots coarse. Ramicauls erect, stout 4-5.5 cm long, completely enclosed by a loose, tubular sheath from below the middle and another sheath at the base. **Leaf** erect, thickly coriaceous, elliptical, subacute to obtuse, shortly petiolate, 8-11 cm long including a petiole ca. 1 cm long, the blade 2-2.8 cm wide, cuneate below into the petiole. **Inflorescence** 1 (occasionally 2) erect, distichous, congested, simultaneously many-flowered raceme, 12-24 cm long including the peduncle 3-4 cm long, from an annulus below the apex of the ramicaul, with a spathe ca. 1 cm long; floral bracts oblique, acute, 1.5-2 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; flowers "greenish brown"; **sepals** minutely short-pubescent, ovate, obtuse, slightly convex, connate below the middle, 3-veined, the dorsal sepal 2 mm long, 2 mm wide, the lateral sepals oblique, 1.5 mm long, 2 mm wide; **petals** transversely flabellate, thin, shallowly concave, 0.75 mm long, 1 mm wide, 3-veined, the margin broadly rounded and slightly thickened; **lip** subquadrate, 0.6 mm long, 0.8 mm wide, 0.5 mm deep, the bar shallowly concave anteriorly with the apex relatively thin, obtuse, with a large but shallow glenion, the dorsum slightly convex, the base truncate, hinged to an obsolescent column-foot; **column** stout, 0.8 mm long and wide, with the anther and the stigma with concave stigmatic processes protruding.

Morona-Santiago: above El Pangui, alt. 1600 m, May 1984, *S. Dalström & T. Höijer 876* (Holotype: SEL), C. Luer illustr. 20503.

This species is apparently endemic in orchid-rich southeastern Ecuador. It resembles a variation of *Stelis lindenii* Lindl., but differs in shorter ramicauls that are completely covered by loose, tubular sheathes. The raceme is multifloral with small floral bracts. The flowers are also small with obtuse, minutely pubescent sepals. The petals are relatively thin and broadly flabellate. The type-A lip is basically similar.

274. **Stelis ophioceps** Luer & Hirtz, sp. nov.

Ety.: From the Greek *ophioceps*, "snake-headed," referring to the ferocious-appearing flower.

Planta perparva caespitosa, foliis anguste ellipticis petiolatis cauli longioribus, racemo laxo longissimo successivifloro, sepalo dorsali nigro convexo pubescenti, sepalis lateralibus luteis nigrimarginatis triangularibus antrorsis, petalis crassis ad medium tumidis, et labello minuto subquadrato distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 6-8 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 15-20 mm long including the petiole 3-7 cm long, 4-5 mm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a loose, elongating, successively many-flowered raceme, to 13 cm long including the peduncle 1-2 cm long, from a node below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 1 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** membranous, the dorsal sepal black, long-pubescent, convex, curving upward near the middle, broadly ovate, obtuse, with the tip recurved, 3 mm long, 2 mm wide, 3-veined, connate to the lateral sepals ca. 0.5 mm, the lateral sepals light yellow with black border, sparsely short-pubescent, triangular, oblique, acute, antrorse, 4 mm long, 2 mm wide, 3-veined; **petals** cellular-glandular, transversely ovate with thickened, oblique margins, markedly thickened medially, concave below a transverse edge across the middle, 0.6 mm long, 1 mm wide, 3-veined; **lip** subquadrate-cuneate, 0.5 mm long, 0.4 mm wide, 0.4 mm deep, concave anteriorly within the subacute, apical margin, the bar thick, bitumidous, with a deep, round glenion, the dorsum flat, with an erect, orbicular, minutely pubescent callus in the center, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.8 mm long, 0.8 mm wide, with the anther and stigma apical.

Morona-Santiago: Chiviaza, east of Limón, alt. 1300 m, 21 Oct. 1999, *A. Hirtz, E. Sánchez and S. Marin 7016* (Holotype: MO), C. Luer illustr. 20864.

In habit, this species from southeastern Ecuador is similar to many tiny, caespitose species with a long, loose, successively small-flowered raceme. The flowers are distinct with a black, forward and recurved, convex, long-pubescent dorsal sepal. The larger, antrorse, triangular lateral sepals are yellow and bordered in black. The petals are thick and swollen medially. The lip is minute with an erect, orbicular callus on the dorsum.

275. **Stelis orbiculata** Luer & Endara, sp. nov.

Ety.: From the Latin *orbiculatus*, "circular," referring to the sepals.

Planta perparva caespitosa, racemo successivifloro folio elliptico duplolongiore, sepalis orbiculatis, petalis transversis uninervis, et labello antice rotundo cum glenione parvo protuberanti distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-7 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 15-23 mm long including an indistinct petiole ca. 5 mm long, the blade 4-5 mm wide, narrowly cuneate below into the petiole. **Inflorescence** a loose, successively several-flowered raceme with 2-3 flowers mature simultaneously, 3-4 cm long including the peduncle 1.5-2 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 0.75 mm long; **sepals** similar, purple with the apices yellow, microscopically cellular within, suborbicular, broadly obtuse, connate below the middle, 3-veined, the dorsal sepal 1.75 mm long, 2 mm wide, the lateral sepals 1.5 mm long, 1.75 mm wide; **petals** purple, transversely ovate, with the apex broadly rounded, concave above and below a transverse callus, 0.6 mm long, 0.75 mm wide, 1-veined; **lip** purple, thickly sub-quadrate, 0.4 mm long, 0.75 mm wide, 0.5 mm deep, concave anteriorly within the broadly rounded, apical margin, the bar thick, convex on either side of a small glenion, the dorsum concave, with a lobular, pubescent callus, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long, 0.75 mm wide, with the anther and bilobed stigma apical.

Morona-Santiago: near Campamento Guarumales, alt. 1650 m, 24 Mar. 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15238* (Holotype: MO).

This small, tufted plant appears similar to many other small, tufted plants. The flowers are produced successively in a loose, several-flowered raceme. The sepals are round and margined; the petals are single-veined; and the lip is shallowly concave within the rounded margin, a single, pubescent, dorsal callus is present.

276. **Stelis panguiensis** Luer & Hirtz, sp. nov.

Ety.: Named for the community of Pangui, near where this species was reported to have been found.

Planta mediocris caespitosa, foliis anguste ellipticis petiolatis cauli breviter longioribus, racemo congesto secundo folio plus minusve longiore, floribus viridescentibus, sepalis obtusis minute pubescentibus, petalis transversis uninervis, et labello subquadrato acuto distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 7-8 cm long, enclosed by a tubular sheath from below the middle and 2 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 10-11 cm long including the petiole ca. 2 cm long, 1-1.4 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** a congested, secund, simultaneously many-flowered raceme, 8-10 cm long including the peduncle ca. 1 cm long, with a spathe 0.9-1 cm long, from an annulus below the apex of the ramicaul; floral bracts narrowly oblique, acute, 3.5 mm long; pedicels 2 mm long; ovary 1.5 mm long; flowers light green, **sepals** minutely ciliate and short-pubescent, the dorsal sepal broadly ovate, obtuse, 3 mm long, 2.75 mm wide, 3-veined, connate to the lateral sepals 1 mm, the lateral sepals ovate, oblique, subacute, 2 mm long, 2.75 mm wide, 3-veined; **petals** transversely subquadrate with thickened, oblique margins, shallowly concave, 0.5 mm long, 1 mm wide, 1-veined; **lip** cuneate, 0.8 mm long, 0.5 mm wide, 0.6 mm deep, shallowly concave anteriorly within the acute, apical margin, the bar thick with a thick glenion, the dorsum flat, densely pubescent below the middle, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 0.8 mm wide, with the anther and narrowly bilobed stigma apical.

Morona-Santiago: "Pangui," alt. 1000 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 2 Feb. 2002, *A. Hirtz 8172* (Holotype: MO), C. Luer illustr. 20862.

This species from southeastern Ecuador is characterized by a narrowly elliptical, petiolate leaf that is slightly longer than the ramicaul, and about as long as the erect, congested, secund raceme of light green flowers. The sepals are shortly pubescent; the petals are broadly subquadrate and single-veined. The type-B lip is cuneate with a shallowly concave, acute tip.

277. **Stelis paradisicola** Luer & Hirtz, sp. nov.

Ety.: From the Latin *paradisicola*, "a dweller in Paradise," referring to the famous Loja-Zamora mountain pass in southern Ecuador.

Planta parvis caespitosa, foliis anguste ellipticis obtusis cauli longioribus, racemo laxe successivo folio plus minusve duplolongiore, sepalis glabris, sepalo dorsali ovato irregulariter septemvenoso, petalis transverse lunatis, et labello brevi ad dorsum irregulariter calloso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-3 cm long, enclosed by a tubular sheath from below the middle and 2 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, obtuse, petiolate, 4-6 cm long including the petiole ca. 0.5 cm long, 1-1.3 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a loose, successively several-flowered raceme, to 12 cm long including the peduncle ca. 4 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** purple-brown, glabrous, the dorsal sepal broadly triangular-ovate, obtuse, 6 mm long, 4.5 mm wide, irregularly 7-veined, connate to the lateral sepals 1 mm, the lateral sepals ovate, oblique, obtuse, 5 mm long, 3.5 mm wide, 3-veined, connate less than 1 mm; **petals** green, transversely lunate with thickened, margins, shallowly concave, 1.3 mm long, 1.6 mm wide, 3-veined, concave below a sharp, transverse callus below the middle; **lip** green, cuneate-oblong, 1 mm long, 1.3 mm wide, 1 mm deep, concave anteriorly within the thickened, subacute apex, the bar shallowly cleft with a glenion continuous with a thick, irregular callus on the dorsum, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1.3 mm wide, with the anther bilobed stigma apical.

Zamora-Chinchipe: along the "new" road at the pass east of Loja, alt. 2250 m, 25 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16164* (Holotype: MO).
Morona-Santiago: Chiquïnda, alt. 3000 m, 28 July 2004, *A. Hirtz & family 8968* (MO).

This small species with relatively large flowers occurs in the high forests of southern Ecuador, including the renowned Loja-Zamora pass noted for the quantity of species of orchids. It is characterized by short ramicauls, longer, narrow leaves, and a slowly successively flowered raceme with fruit and buds maturing simultaneously. The dorsal sepal is five-veined or seven-veined, complete or incomplete, and the veins vary in their origins and terminations. The lateral sepals are antrorse, resembling a synsepal. The lunate petals have a thick, round margin, and the lip is short and transversely cuneate-oblong. The dorsal callus continues forward into the glenion.

278. **Stelis paulula** Luer & H.P.Jesup, sp. nov.

Ety.: From the Latin *paululus*, "very small," referring to the habit and flower.

Planta minuta caespitosa, racemo successivifloro elongatissimo flexuoso, folio elliptico petiolato, floribus minutissimis, sepalis late ovatis obtusis, petalis transversis trininervis, et labello obtuso antice concavo cum glenione parvo protuberanti distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 15-18 mm long including the petiole 5-7 mm long, 4-5 mm wide, cuneate below into the petiole. **Inflorescence** a loose, flexible, flexuous, hair-like, successively many-flowered raceme with 1-2 flowers mature simultaneously, to 12 cm long including the peduncle ca. 1 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 1 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** similar, dull light rose, cellular-glandular within, broadly ovate, obtuse, 1 mm long, 1 mm wide, incompletely 3-veined, connate below the middle; **petals** red-purple, transversely ovate, concave below the thickened, broadly obtuse apex, and concave below a transverse callus 0.5 mm long, 0.75 mm wide, 3-veined; **lip** red-purple, thickly subquadrate, 0.4 mm long, 0.6 mm wide, 0.4 mm deep, concave anteriorly within the broadly rounded, apical margin, the bar thick, with a small, elevated glenion, the dorsum shallowly concave, with a round, central, pubescent callus, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long, 0.5 mm wide, with the anther and bilobed stigma apical.

Ecuador, without collection data, cultivated by P. Jesup in Bristol, CT, 28 Mar. 1982, *C. Luer 7428* (Holotype: SEL).

This tiny species from an unknown locality in Ecuador is related to *Stelis semperflorens* Luer from Panama, but the latter is twice larger in dimensions. *Stelis paulula* is about two centimeters tall, but the successively flowered raceme can reach 12 centimeters in length. The rachis is hair-like and flexuous. The sepals are one millimeter long and wide, and cellular-glandular; the petals are three-veined; and the lip is notable for a small, protuberant, minutely pubescent glenion.

279. **Stelis pluriracemosa** Luer & Hirtz, sp. nov.

Ety.: From the Latin *pluriracemosus*, "with several racemes," referring to the inflorescence.

Planta mediocris caespitosa, folio ovato acuto cauli breviore, racemis pluribus congestis folio brevioribus, sepalis longivillosis late ovatis, petalis transversis uninervis, et labello obtuso antice concavo.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-14 cm long, with a tubular sheath from near the middle and 2 sheaths about the base. **Leaf** erect, coriaceous, narrowly ovate, acute, petiolate, 6-9 cm long including the petiole 1-1.2 cm long, 1.5-2.3 cm wide, cuneate below into the petiole. **Inflorescence** 3-6, congested, many-flowered racemes with few to many flowers simultaneously in flower, 4-8 cm long including the peduncle ca. 1 cm long, with a spathe 1-1.2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 1-1.5 mm long; ovary 1.5 mm long; **sepals** yellow, long-villous within, broadly ovate, obtuse, incompletely 3-veined, connate below the middle, the dorsal sepal 2 mm long, 2 mm wide, the lateral sepals 2 mm long,

1.75 mm wide; **petals** yellow, transversely oblong, thickened and cellular-papillose along the transverse apex, shallowly concave, 0.8 mm long, 1 mm wide, 3-veined; **lip** yellow, thickly subquadrate, 0.8 mm long, 0.9 mm wide, 0.6 mm deep, concave anteriorly within the broadly obtuse, apical margin, the bar thick, the dorsum convex, microscopically pubescent, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the anther and bilobed stigma apical.

Morona-Santiago: near Guarumales, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 17 Apr. 2001, *A. Hirtz 7698* (Holotype: MO), C. Luer illustr. 20490.

This species from southeastern Ecuador is characterized by an ovate, acute leaf and several, shorter, congested, simultaneous racemes. The sepals are long-villous; the petals are cellular-papillose and three-veined, and the type-B lip is shallow and subquadrate with a broadly triangular apex, and with a convex callus filling more than the basal half. *Stelis millenaria* Luer is similar, but the racemes are shorter and few-flowered, with the flowers half the size with one-veined petals.

280. **Stelis prolificosa** Luer & Hirtz, sp. nov.

Ety.: From the Latin *prolificus*, "proliferative," referring to the prolific habit.

Planta mediocris prolificans, ramicaulibus folio elliptico longioribus, racemis multifloris flexuosis folio superantibus, sepalis late ovatis, et labello antice concavo obtuso distinguitur.

Plant medium in size, epiphytic, prolific; roots slender. Ramicauls erect, slender, 4-12 cm long, with a tubular sheath from near the middle and 2 sheaths about the base. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 4-6 cm long including the petiole 0.5-1 cm long, 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, sublax, flexuous, many-flowered raceme with most flowers open simultaneously, to 12 cm long including the peduncle 2-4 cm long, with a spathe 1-1.2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 1-1.5 mm long; ovary 1.75 mm long; flowers dark red; **sepals** glabrous, subsimilar, very narrowly margined, broadly ovate, obtuse, 3-veined, an occasional dorsal sepal 5-veined, connate below the middle, the dorsal sepal 3 mm long, 3 mm wide, the lateral sepals 2.5 mm long, 3 mm wide; **petals** transversely lunate, thickened and with multiple crystals along the transverse apex, shallowly concave, 1.3 mm long, 1.8 mm wide, 3-veined; **lip** thickly subquadrate, 1 mm long, 1.8 mm wide, 0.8 mm deep, concave anteriorly within the broadly obtuse, narrowly margined apex, the bar with the glenion cleft from the dorsum, the dorsum concave, with a callus above the base, microscopically pubescent, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1.5 mm wide, with the anther and bilobed stigma apical.

Napo: between Papallacta and Cuyuja, alt. 2900 m, 15 June 2004, collected by the Hirtz family, *A. Hirtz 8762* (Holotype: MO), C. Luer illustr. 20912.

This species from the eastern slope of central Ecuador is characterized by a prolific habit, a habit shared by few others. The flowers, not remarkably distinct, are borne in a many-flowered, flexuous raceme with prominent floral bracts that exceeds the leaf in length. The broadly ovate sepals are very narrowly margined; the transverse petals are three-veined; and the type-A lip is concave within a thin, obtuse margin, and a single dorsal callus,.

281. **Stelis protuberans** Luer & Hirtz, sp. nov.

Ety.: From the Latin *protuberans*, "protuberant," referring to the bulging bases of the sepals.

Planta mediocris caespitosa, folio anguste elliptico cauli racemoque plus minusve aequilongo, racemo multifloro congesto, sepalis glabris ovatis acutis ad basim convexis protuberantibus, petalis transversis indistincte quinquenervis, et labello transverso tricalloso distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 6-7.5 cm long, with a tubular sheath from below the middle and 2 sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 7.5-9 cm long including a petiole ca. 1 cm long, 1-1.2 cm wide, cuneate below into the petiole. **Inflorescence** a congested, many-flowered raceme with several to many flowers open simultaneously, 7-8 cm long including the peduncle 1-1.5 cm long, with a spathe 1.3-1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts with revolute margins, oblique, acute, 6-7 mm long; pedicels 2-3 mm long; ovary 2 mm long; **sepals** purple with an olive hue, glabrous, ovate, acute, the bases connate and convex 1.5 mm to form a spherical protuberance, the dorsal sepal 6.5 mm long, 4.25 mm wide, the lateral sepals connate into a concave synsepal, but soon separate, 5 mm long, 4.25 mm wide; **petals** dark red, transversely ovate, thickened along the transverse, broadly rounded apex, shallowly concave, 1 mm long, 2 mm wide, indistinctly 5-veined; **lip** dark red, transversely oblong, 1

mm long, 1.5 mm wide, 0.75 mm deep, shallowly concave anteriorly within the broadly rounded, apical margin, the bar with a glenion, the dorsum with 3 calli, the base truncate, hinged to the column-foot; **column** stout, 1 mm long, 1.5 mm wide, with the anther and bilobed stigma apical.

Morona-Santiago: Pangui Alto, alt. 1200 m, collected by Lester Lapo, and cultivated by Ecua-genera, Gualaceo, flowered in cultivation July 2004, *A. Hirtz 8792* (Holotype: MO), C. Luer illustr. 20886.

This species from southeastern Ecuador is characterized by a narrowly elliptical leaf about as long as the ramicaul and its inflorescence. The raceme is erect and crowded with flowers that retain adherent lateral sepals as in section *Humboldtia*, eventually separating to expose a protuberance formed by the convex bases of the sepals with the central apparatus mounted at the summit. The petals are transversely calloused and three-veined, but a faint additional pair is visible. The lip is shallowly transverse with three calli on the dorsum.

282. **Stelis ramificans** Luer & Endara, sp. nov.

Ety.: From the Latin *ramificans*, "branching," referring to the habit.

Planta scandens mediocris grandisve, ramicaulibus ramificantobus, racemis multifloris distichis folio elliptico longioribus, sepalis ovatis libris, labello 'type 2' simplex.

Plant medium in size, epiphytic, repent, scandent, the rhizome stout, 1-6 cm long between ramicauls; roots slender. Ramicauls stout, 4-10 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, petiolate, with the apex acute to subacute, 4-9 cm long including a petiole 1-2 cm long, the blade 0.8-1.3 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a slender, erect, congested, distichous, many-flowered raceme, with most flowers open simultaneously, 6-10 cm long including a peduncle ca. 1 cm long, subtended with a spathe 7 mm long at an annulus below the apex of the ramicaul; floral bracts tubular, obtuse, oblique, 2 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** pale yellow, glabrous, elliptical-ovate, subacute, connate basally, 3-veined, the dorsal sepal 1.6 mm long, 1.2 mm wide, the lateral sepals expanded, 1.5 mm long, 1 mm wide; **petals** transversely obovate, 0.5 mm long, 0.75 mm wide, 3-veined, shallowly concave below the broadly obtuse or truncate, slightly thickened apical margin; **lip** oblong, 0.6 mm long, 0.5 mm wide, 0.5 mm deep, the apex broadly obtuse with a small, triangular apiculum, the bar concave, cleft, the dorsum shortly pubescent toward the base, the base broadly truncate, hinged to the column; **column** stout, 0.75 mm long, 0.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: between Limón and Gualaceo, alt. 2700 m, 12 June 1979, *B. Løjtnant, A. & U. Molau 14649* (Holotype: AAU; Isotype: GB), C. Luer illustr. 20511.

This species is characterized by a robust, scandent, proliferating habit. The rhizome is stout and branching, producing at intervals two or three ramicauls. The raceme is densely flowered with minute, elliptical, nearly free sepals; the petals are broad and triveined. The lip is type-B with the marginal apiculum very small.

283. **Stelis riozunagensis** Luer & Hirtz, sp. nov.

Ety.: Named for the remote Río Zuñag where the species was collected.

Species haec *Stelis triplicatae* Lindl. similis, sed floribus minoribus, sepalis quinque nervatis, sepalis lateralibus obtuse acuminatis, petalis parvis sine callo transverso, et labelli glenione grandi profundo differt.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-10 cm long, enclosed by a large, loose, tubular sheath from below the middle and 2 other sheaths below. **Leaf** erect, thickly coriaceous, elliptical, obtuse, 10-12 cm long, 2-2.5 cm wide, cuneate below into a petiole 1-1.5 cm long. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, 15-22 cm long, flowering from near the base, with a spathe 1 cm long, from an annulus near the apex of the ramicaul; floral bracts inflated, oblique, acute, more or less imbricating, 8-10 mm long, 6-8 mm wide below to 6 mm long above; pedicels 2.5 mm long, within the floral bract; ovary 2 mm long; flowers purple; **sepals** glabrous, transversely ovate, obtuse, deeply connate, the dorsal sepal 4.5 mm long, 6.5 mm wide, 5-veined, the lateral sepals 4 mm long, 5.5 mm wide, 5-veined, with the obtuse apices acuminate; **petals** transversely ovate, 1 mm long, 1.5 mm wide, shallowly concave below the broadly rounded apex, with only a faint transverse callus, the margin narrowly thickened; **lip** thickly triangular, 1 mm long, 1.2 mm wide, 0.8 mm deep, concave anteriorly with a broad, deep glenion, the apex rounded with a thickened margin, the dorsum concave with a proportionately large, rounded callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the anther and the bilobed stigma apical, the foot obsolescent.

Pastaza: epiphytic in cloud forest along Río Zuñag, alt. 2400 m, 28 Feb. 1990, *A. Hirtz, S. Dalström et al. 4648* (Holotype: MO), C. Luer illustr. 20475.

This robust species is known from only the original collection made in a remote area on the eastern slope of the Andes of central Ecuador. It is similar to *Stelis triplicata* Lindl., but differs with the raceme flowering from near the base; smaller, five-veined sepals with the laterals obtusely acuminate; petals smaller, not overlapping above the column, and with only a faint transverse callus instead of a thick, sharp-edged, transverse callus; and a large, deep glenion.

284. **Stelis satyrica** Luer & Hirtz, sp. nov.

Ety.: From the Latin *satyricus*, "like a satyr, a Greek mythological woodland diety".

Planta parva prolificans, recemo sublaxe-flexuoso plurifloro arcuato folio elliptico excedenti, bracteis conspicuis, sepalis obtusis, petalis transversis trinervis, et labello oblongo obtuso leviter concavo con callo centrali oblongo distinguitur.

Plant small, epiphytic, caespitose-prolific; roots slender. Ramicauls, erect, superposed, stout, 2-4 cm long, enclosed by a tubular sheath from below the middle and 1-2 other sheaths below. **Leaf** erect, coriaceous, elliptical, subacute to acute, 2-4 cm long, 0.7-1 cm wide, narrowed below into a petiole 0.5-1 cm long. **Inflorescence** an erect, arching, loose, distichous, several-flowered raceme with most flowers open simultaneously, 6-8 cm long, including a peduncle 3-4 mm long, with a spathe 3-4 mm long, from an annulus near the apex of the ramicaul; floral bracts infundibular, oblique, acute, 3-4 mm long below, 2.5 mm long above; pedicels 4 mm long below to 2 mm long above; ovary 1 mm long; flowers not noted; **sepals** glabrous, broadly ovate, obtuse, concave, connate basally, the laterals held forward, the dorsal sepal 2.5 mm long, 2 mm wide, incompletely 3-veined, the lateral sepals 2.75 mm long, 1.6 mm wide, incompletely 5-veined; **petals** transversely obovate, 1 mm long, 1.5 mm wide, 3-veined, concave below the broadly rounded, thickened margin; **lip** subquadrate, 1.5 mm long, 1.2 mm wide, 0.5 mm deep, concave anteriorly within the broadly obtuse apical margin, the bar replaced with a flat, longitudinal callus, covered at the base with multiple rows of microscopic pubescence, the base truncate and hinged to the base of the column; **column** stout, microscopically pubescent, 1.5 mm long, 1.5 mm wide, the anther and the small, transverse stigma apical, the foot obsolescent.

Zamora-Chinchipe: east of the pass east of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10722* (Holotype: MO).

This little caespitose species from the area of the renowned Loja-Zamora pass occasionally bears a superposed ramicaul. A long-pedunculate, arching, subflexuous raceme of tiny flowers exceeds the leaves. The half-closed flowers are superficially similar to those of sympatric *Stelis pudens* Luer with proportionately large petals, lip and column. The petals are transverse and faintly three-veined. The lip is subquadrate and more or less flat with a low, oblong callus along the middle third, and minutely pubescent in microscopic rows at the base opposite the minutely pubescent shaft of the column, reminiscent of the lip and column of sympatric *S. declivis* (Lindl.) Luer.

285. **Stelis scaberula** Luer & Hirtz, sp. nov.

Ety.: From the Latin *scaberulus*, "scurfy," referring to the interior of the sepals.

Species haec *Stelidis hymenanthae* Schltr. affinis, sed bracteis floralis abbreviatis, sepalis carnosis intus scabrosis et labelli apiculo longiore differt.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 3-4 cm long, enclosed by a ribbed, tubular sheath from near the middle, and 2-3 sheaths below the middle. **Leaf** erect, coriaceous, narrowly obovate-oblong, obtuse, 4-5.5 cm long including an indistinct petiole less than 1 cm long, 0.5-0.6 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** an erect, lax, distichous, few-flowered raceme with most flowers open simultaneously, 2.5 cm long, flowering to near the base, with a spathe 5 mm long, from below the apex of the ramicaul; floral bracts oblique, acute, 1 mm long; pedicels 1 mm long; ovary 0.75 mm long; **sepals** fleshy, subexpanded, light yellow, carinate and glabrous externally, densely scabrous-papillose within, broadly ovate, obtuse, 1.2 mm long, 1.2 mm wide, 3-veined, connate basally; **petals** green, oblong-obovate, 0.5 mm long, 0.3 mm wide, shallowly concave below the subtruncate apex with the margin thickened, cellular-glandular; **lip** thick, subquadrate, 0.6 mm long, 0.4 mm wide, 0.3 mm deep, the apex subtruncate with an abrupt, acute, triangular

apiculum, the disc with a broad callus filling the basal half, deeply cleft medially into the cavity below the apiculum, the base broadly truncate, thickly pubescent, hinged to the base of the column; **column** stout, 0.8 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Pichincha: between Pacto and Bancos, alt. 1700 m, collected by Hirtz, Aug. 2004, cultivated in Quito, *A. Hirtz 8987* (Holotype: MO), C. Luer illustr. 20896.

This small species is similar to both *Stelis hymenantha* Schltr. and *S. spathulata* Poepp. & Endl., but differs from them by very small floral bracts that do not enclose the peduncle and ovary. The raceme is short and loosely few-flowered. The sepals are fleshy and diffusely scabrous-papillose within. The petals and lip of all three species are similar, the apiculum of *S. scaberula* being slightly larger and longer.

286. **Stelis scitula** Luer & Hirtz, sp. nov.

Ety.: From the Latin *scitulus*, "pretty," referring to the flowers.

Planta mediocris brevicaulis caespitosa, racemo sublaxe plurifloro folio elliptico longiore, bracteis conspicuis, sepalis flavis obtusis, labello illi *Stelis viridibrunneo* F.Lehm. & Kraenzl. similis distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-3 cm long, enclosed by a large, loose, tubular sheath from below the middle and 2 other sheaths below. **Leaf** erect, thickly coriaceous, elliptical, acute to subacute, 7-8 cm long, 1-1.5 cm wide, narrowed below into a petiole 1-1.5 cm long. **Inflorescence** an erect, congested, secund, several-flowered raceme with most flowers open simultaneously, 12-14 cm long, including a peduncle 3-6 mm long, with a spathe 6 mm long, from an annulus near the apex of the ramicaul; floral bracts infundibular, inflated, oblique, acute, 3-4 mm long; pedicels 2 mm long; ovary 1.5 mm long; flowers yellow; **sepals** cellular-papillose, broadly ovate, obtuse, convex, connate basally, the dorsal sepal 3.75 mm long, 3.75 mm wide, incompletely 5-veined, the lateral sepals 2.5 mm long, 3.25 mm wide, incompletely 5-veined; **petals** transversely ovate, 0.75 mm long, 1.5 mm wide, 3-veined, concave below the broadly rounded, thickened margin; **lip** subquadrate, 0.5 mm long, 1.1 mm wide, 0.6 mm deep, concave anteriorly within the broadly rounded apical margin, the bar with a broad, long glenion extending from near the base forward and downward on the anterior surface, the dorsum with the base shortly pubescent, and broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.2 mm wide, the anther and the bilobed stigma apical.

Morona-Santiago: new road between Mendez and Paute, alt. 1680 m, 3 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19629* (Holotype: MO).

This pretty, yellow-flowered species, similar in many ways to many others, is found on the eastern slope of the Andes of central Ecuador. It is distinguished by elliptical leaves surpassed by the raceme, but considerably longer than the ramicauls. The floral bracts are conspicuous, and the flowers are yellow. The sepals are broad and five-veined, and the transverse, three-veined petals are without a transverse callus. The length of the round lip is short, but deep with an elongated glenion extending over the dorsum, similar to the lip of *Stelis viridibrunnea*.

287. **Stelis septicola** Luer & Endara, sp. nov.

Ety.: From the Latin *septicola*, "dwelling on the fence," in allusion to an indecisive relationship among the species of the genus.

Planta mediocris, racemo congesto minutifloro folio anguste elliptico multilongiore, sepalis obtusis scaberulis, petalis membranaceis truncatis uninervis, et labello oblongo concavo ad basim calloso.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 2-4 cm long, with a long, tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 6-8 cm long including an ill-defined petiole ca. 1 cm long, the blade 1.2-1.4 cm wide, the base cuneate into the petiole. **Inflorescence** a single, densely and successively many-flowered raceme with several flowers open simultaneously, 10-17 cm long including a peduncle 4-5 cm long, with a spathe ca. 1 cm long from near the apex of the ramicaul; flowers very small; floral bract 0.75-1 mm long; pedicel 0.75-1 mm long; ovary 0.5 mm long; **sepals** similar, color not stated, glabrous externally, microscopically pubescent within, broadly elliptical-suborbicular, broadly obtuse to rounded at the apex, more or less convex, connate below the middle, the dorsal sepal 1 mm long, 0.8 mm wide, 1-veined, the laterals 0.8 mm long, 0.6 mm wide; **petals** membranous, broadly cuneate, truncate, 0.3 mm long, 0.3 mm wide; **lip** thin, oblong-obovate, concave, obtuse, 0.75 mm long, 0.4 mm wide, with an oblong or wedge-shaped callus extending a short way from the truncate base, hinged to the column-foot; **column** stout, semiterete, erect, 0.5 mm long, the clinandrium trilobulate, the stigma ventral.

Guayas: above Hda. La Elvira, 5 kilometers west of Bucay, alt. ca. 500 m, 6 July 1979, *B. Løjtnant & U. Molau 15605* (Holotype: AAU), C. Luer illustr. 20524; Teresita, 3 kilometers west of Bucay, alt. 270 m, 5-7 July 1923, *A.S. Hitchcock 20441* (AMES, US), C. Luer illustr. 20508.

This species from lowland western Ecuador is similar to those species treated in *Pleurothallis* subgenus *Pseudostelis* Schltr. (Luer, 1999), and a relationship with *Stelis declivis* (Lindl.) Luer is also apparent. A thin, erect raceme of numerous, tiny flowers with several open simultaneously surpasses the leaf. The one-millimeter-long sepals are nearly round, the petals are single-veined, and the type-B lip is scaphoid with a basal callus.

288. **Stelis similis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *similis*, "similar," in allusion to the similarity to several other species.

Planta parva caespitosa, racemo folio elliptico petiolato longiore, sepalis obtusis anguste marginata, petalis transverse ovatis trinervis, et labello transverse oblongo unicalloso.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2.5-5 cm long, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 3-5.5 cm long including a petiole 1-2 cm long, the blade 0.5-1 cm wide, cuneate below into the slender petiole. **Inflorescence** an erect, distichous, subflexuous, subdensely many-flowered raceme with many flowers open simultaneously, 6-8 cm long, including a peduncle ca. 2 cm long, subtended by a spathe 6 mm long, from below the apex of the ramicaul; floral bracts obliquely infundibular, obtuse, 2.5-3 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; flowers dark red, **sepals** glabrous, broadly ovate, obtuse, narrowly marginate, connate below the middle, 3-veined, the dorsal sepal 3 mm long, 3 mm wide, the lateral sepals oblique, 2 mm long, 2.1 mm wide; **petals** transversely ovate, broadly rounded at the apex with the margin thickened and pigmented, concave above the base below a transverse callus, 0.8 mm long, 1.2 mm wide, 3-veined; **lip** broadly subquadrate, 0.75 mm long, 1 mm wide, 0.6 mm deep, concave anteriorly within the broadly rounded apical, pigmented margin, the bar with a shallow glenion, the dorsum with a rounded callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, with a rudimentary foot, the anther and the bilobed stigma apical.

Morona-Santiago: new road between Guamote and Macas, alt. 2900 m, 14-16 Oct. 2004, *A. Hirtz, E. Sánchez et al. 9117* (Holotype: MO), C. Luer illustr. 20889.

This species is similar to a few others (*Stelis scitula* and *S. stormii* described herein, and *S. viamontis* Luer & Hirtz) also known from high altitudes of the eastern slopes of the Andes of Ecuador. It is distinguished from them by a small habit with elliptical, petiolate leaves exceeded by a subflexuous, many-flowered raceme of small flowers. The sepals are ovate, obtuse and glabrous; the petals are three-veined; and the lip is broadly oblong with a broadly rounded apex. The margins of the petals and lip retain a dark pigment in pickling solution.

289. **Stelis soricina** Luer & Hirtz, sp. nov.

Ety.: From the Latin *soricinus*, "of a rat," in allusion to the rat tail-like raceme.

Planta grandis robusta scandens, racemo erecto dense multifloro folio ovato acuto longiore, bracteis floralibus inflatis, sepalis ellipticis lateralibus conniventibus glabris, petalis extus incrassatis concavis, et labello subdiscoideo antice concavo infra medium pubescenti distinguitur.

Plant large, robust, epiphytic, scandent, roots slender. Ramicauls stout, prolific, 8 to more than 18 cm long, enclosed by 3-4 close, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute, petiolate, 8-12 cm long including the petiole 1-1.5 cm long, the blade 1.5-3 cm wide, cuneate below into the petiole. **Inflorescence** a strict, erect to suberect, congested, secund, many-flowered raceme, with many flowers open simultaneously, 7-12 cm long, flowering from the base, with a spathe ca. 1 cm long, from near the apex of the ramicaul; floral bracts inflated, oblique, obtuse, 3 mm long, 3 mm wide; pedicels 1.5 mm long; ovary 1.5-2 mm long; flowers light yellow-green, **sepals** connivent, glabrous, ovate, obtuse, connate basally, 3-veined with the midvein thick, the dorsal sepal convex, 4.5 mm long, 2.5 mm wide, the lateral sepals concave, 3 mm long, 3.6 mm wide; **petals** suborbicular, concave, thickened externally, especially along the midvein, 1 mm long, 1 mm wide, 3-veined, the midvein strong, the lateral veins vestigial; **lip** thick, subdiscoid, 1 mm long, 0.8 mm wide, 0.5 mm deep, concave anteriorly, the apex rounded with a thickened margin, the bar low but thick with a glenion, densely short-pubescent above, the base broadly truncate, hinged to the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Imbabura: Mariano Acosta, alt. 3300 m, Aug. 1997, *A. Hirtz, X. Hirtz & E. Sánchez 6589* (Holotype: MO), C. Luer illustr. 20487.

This large species from a high altitude in northern Ecuador is characterized by a stout, prolific habit; acute, elliptical leaves; and a straight, densely many-flowered raceme that flowers from the base. The floral bracts are inflated and imbricating. The flowers are small with connivent lateral sepals, the petals are concave and thickened externally, and the lip is type-B.

290. **Stelis sororcula** Luer & Hirtz, sp. nov.

Ety.: From the Latin *sororcula*, "a little sister," in allusion to the tiny habit.

Planta perparva dense caespitosa, racemo sublaxe paucifloro foliis duplolongiore, sepalis latissime ovatis lateralibus obliquis microscopice papillosis, petalis trinervis, et labello ovoideo obtuso non profunde concavo distinguitur.

Plant very small, densely caespitose, epiphytic; roots slender. Ramicauls slender, 3-7 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 7-12 mm long including the petiole 1-3 mm long, the blade 4-5 mm wide, cuneate below into the petiole. **Inflorescence** 1-2 erect, subcongested, flexuous, several-flowered racemes, with most flowers open simultaneously, 25-35 mm long, the peduncle ca. 10 mm long, from near the apex of the ramicaul; floral bracts oblique, acute, 1-1.5 mm long; pedicels 1 mm long; ovary 0.75 mm long; **sepals** rose, green toward the margin, glabrous externally, cellular-papillose within, transversely ovate, obtuse, connate below the middle, 3-veined, the dorsal sepal 1.6 mm long, 2.2 mm wide, the lateral sepals oblique, 1.2 mm long, 1.8 mm wide; **petals** red, transversely ovate, shallowly concave below the broadly rounded, thickened margin, sharply concave below a transverse callus, 0.5 mm long, 0.75 mm wide, 3-veined; **lip** red, subquadrate, 0.4 mm long, 0.6 mm wide, 0.4 mm deep, shallowly concave anteriorly, the apex rounded with a narrow margin, the bar with a shallow glenion, the dorsum with a round, central callus, the base truncate, hinged to the column; **column** stout, 0.4 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Tungurahua: Río Topo, alt. 1300 m, 15 July-15 Oct. 1983, *A. Hirtz 1111* (Holotype: SEL), C. Luer illustr. 20505.

This tiny species grows with another tiny species, *Stelis cutucuënsis* Luer & Hirtz, which is also known from the Cordillera del Cutucú. The former is characterized by a minute, densely caespitose habit with elliptical leaves and twice longer, several-flowered, flexuous racemes. The sepals, cellular-papular within, are transversely ovate with the laterals oblique with the lower margins short. The three-veined petals are sharply concave below a transverse callus. The lip is obtuse with a shallow glenion and a round callus on the dorsum.

291. **Stelis stormii** Luer & Endara, sp. nov.

Ety.: Named for G. Storm, Swedish co-collector of this species.

Planta parva caespitosa, racemis densifloris folio elliptico duplolongioribus, sepalis obtusis, petalis suborbicularibus uninervis callo transverso latissimo, et labello transverse oblongo non profundo.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 12-20 mm long, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 20-25 mm long including a petiole ca. 5 mm long, the blade 6-8 mm wide, cuneate below into the slender petiole. **Inflorescence** an erect, distichous, densely many-flowered raceme probably with many flowers open simultaneously, 4-6 cm long, including a peduncle ca. 2 cm long, subtended by a spathe 3-4 mm long, below the apex of the ramicaul; floral bracts oblique, acute, 1.5-2 mm long; pedicels 1 mm long; ovary 1 mm long; flowers yellow, **sepals** glabrous, broadly ovate, obtuse, connate below the middle, 3-veined, the dorsal sepal 2.5 mm long, 2.5 mm wide, the lateral sepals oblique, 1.75 mm long, 2.2 mm wide; **petals** suborbicular, broadly rounded at the apex with the margin slightly and narrowly thickened, concave above the base below a very wide transverse callus that occupies most of the petal, 0.75 mm long, 0.9 mm wide, 1-veined; **lip** broadly and shallowly subquadrate, 0.4 mm long, 1 mm wide, 0.4 mm deep, concave anteriorly within the transverse apical margin, the bar with a shallow glenion, the dorsum with a rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, with a rudimentary foot, the anther and the bilobed stigma apical.

Azuay: above Campamento Molón, between Sigsig and Gualaquiza, alt. 2900-3000 m, *G. Harling, G. Storm & B. Ström 8225* (Holotype: GB), C. Luer illustr. 20518.

This species, known only from one collection, is apparently confined to southeastern Ecuador. It is distinguished by a small habit with elliptical leaves doubly exceeded by a densely many-flowered raceme of small flowers. The broadly ovate sepals are not remarkable. The rounded, single-veined petals are mostly composed of a broad transverse callus. The transverse lip is broadly oblong, much broader than long.

292. **Stelis strictissima** Luer & Hirtz, sp. nov.

Ety.: From the Latin *strictissimus*, "very straight," referring to the inflorescence.

Planta parva mediocrisve caespitosa, racemis duobus vel tribus strictissimis sublaxe multifloris folio anguste elliptico exceedentibus, sepalis obtusis pubescentibus, petalis transverse oblongis uninervis duonervisve, et labello transverse subquadrato area centralis convexa-curvata distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3.5 cm long, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 3.5-7.5 cm long including a petiole 1-1.5 cm long, the blade 1-1.4 cm wide, cuneate below into the slender petiole. **Inflorescence** 2-3 erect, straight, distichous, subdensely many-flowered racemes, with several flowers open simultaneously, 12-15 cm long, including a strict peduncle 6-8 cm long, subtended by a spathe to 2 cm long, below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1.5 mm long; ovary 1.25 mm long; flowers purple, **sepals** long-pubescent, broadly ovate, obtuse, with margins somewhat recurved, connate below the middle, 3-veined, the dorsal sepal 2 mm long, 2 mm wide, the lateral sepals oblique, 1.8 mm long, 1.8 mm wide; **petals** transversely suboblong, with sides broadly rounded and transversely obtuse at the apex, shallowly concave below an ill-defined transverse callus, 0.5 mm long, 0.85 mm wide, 1-veined, with or without a small, additional vein; **lip** transversely subquadrate with sides and apex broadly rounded, 0.5 mm long, 0.6 mm wide, 0.5 mm deep, shallowly concave within the transversely obtuse apical margin, the bar convex and curved from the base, with a small and narrow glenion, the base truncate, cellular pubescent, hinged to the base of the column; **column** stout, 0.5 mm long and wide, the anther and the bilobed stigma apical.

Pichincha: collected between Nanegalito and Pacto, alt. 1900 m, flowered in cultivation in Quito, *A. Hirtz 9082* (Holotype: MO), C. Luer illustr. 20915.

This species, known only from a collection by Hirtz near Quito, is distinguished by two or three straight, erect racemes that exceed the leaf in length. The sepals are long-pubescent and ovate with the margins more or less recurved. The petals are single-veined, but an additional vein is seen in some petals. The lip is transverse with a broad apex. The bar is convex the entire width with a small, slit-like glenion.

293. **Stelis supervivens** Luer & Hirtz, sp. nov.

Ety.: From the Latin *supervivens*, "high living," referring to the habitat.

Petalis labelloque illis *Stelidis pusillae* Kunth affinis, sed foliis carnosis crassissimis racemo congesto plus minusve aequilongis, floribus successivis semiclausis fecundis, et sepalis marginatis intus brevi pubescentibus.

Plant very small, terrestrial, caespitose to ascending; roots coarse. Ramicauls fasciculate, erect, stout, 0.5-1.5 cm long, enclosed by 2 tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, acute, 15-20 mm long, 5-8 mm wide, 3-4 mm thick, cuneate below into the subpetiolate base. **Inflorescence** an erect, congested, secund, successively several-flowered raceme with all flowers fertilized, 20-30 mm long including the peduncle 10-15 mm long, from an annulus below the apex of the ramicaul; floral bracts tubular, acute, 1.5 mm long; pedicels 1.5 mm long; ovary 3 mm long below, 1 mm long above; **sepals** not expanded, orange, connate basally, glabrous externally, minutely pubescent within, broadly ovate, obtuse, margined, dorsal sepal 1.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals 1.2 mm long, 1.4 mm wide, 2-veined; **petals** transversely cuneate, 0.5 mm long, 0.6 mm wide, 1-veined, shallowly concave below the broadly obtuse, thickened, apical margin; **lip** thick, subquadrate, 0.6 mm long, 0.8 mm wide, 0.5 mm deep, the apex obtuse with a short, obtuse apiculum, concave anteriorly, the bar indistinctly bilobed with a glenion, the dorsum minutely pubescent, the base truncate, hinged to the base of the column; **column** stout, ca. 0.6 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Carchi: terrestrial in paramo west of the pass west of Tulcán, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15071* (Holotype: MO).

This little species is apparently a local deviation from the numerous populations of *Stelis pusilla* Kunth that grow at high altitudes. The leaves are succulent, three to four millimeters thick, and about as long as a mature raceme. The flowers are crowded and successive. They remain mostly closed, each producing a capsule. The sepals are fleshy with thickened margins, and minutely pubescent within. The petals and lip do not differ significantly from those seen in *S. pusilla*.

294. **Stelis tanythrix** Luer & Hirtz, sp. nov.

Ety.: From the Greek *tanythrix*, "long-hairy," referring to the sepals.

Species haec *Stelidis argentatae* Lindl. affinis, sed habitu minore, sepalis longivillosis, petalis uninervis et labello sine apiculo differt.

Plant small, epiphytic, densely caespitose, roots slender. Ramicauls erect, 1-2 cm long, enclosed by two tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 4-5 cm long including a petiole 1-1.5 cm long, 0.9-1.1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, strict, sublax, distichous, simultaneously many-flowered raceme, 10-13 cm long including the peduncle 5-6 cm long, the spathe rudimentary, from an annulus below the apex of the ramicaul; floral bracts oblique, obtuse, 1.5 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** purple, glabrous externally, long-villous within, broadly ovate, obtuse, the dorsal sepal 2.25 mm long, 2 mm wide, 3-veined, connate 1 mm basally to the laterals, the lateral sepals 2 mm long, 2.25 mm wide, 3-veined; **petals** green, thin, transversely oblong, with a narrow, thin margin, transversely obtuse at the apex, shallowly concave below, 0.6 mm long, 0.8 mm wide, 1-veined; **lip** green, transversely oblong, 0.6 mm long, 1 mm wide, 0.75 mm deep, shallowly concave within the broadly rounded apex with a thickened margin, the bar higher than the margins with a shallow, central glenion, the dorsum minutely pubescent, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long and wide, the foot obsolescent, the anther and bilobed stigma apical.

Loja: old road between El Cisne and Puertovelo, alt. 1500 m, 1 Feb. 2003, *A. Hirtz, E. Sánchez & W. Bautz 8486* (Holotype: MO), C. Luer 20847.

This species is apparently endemic in semiarid southwestern Ecuador. It is related to the great swarm of variations of *Stelis argentata* Lindl. It differs from them by a small, densely caespitose habit; densely long-villous sepals, single-veined petals, and a lip without a marginal apiculum.

295. **Stelis tetramera** Luer, sp. nov.

Ety.: From the Greek *tetramerus*, "with four parts," referring to the pollinarium.

Species mediocris grandisve, racemo multifloro folio obovato longipetiolato superanti, sepalis latis obtusis lateralibus semiconnatis, petalis transverse callosis, labello proportione parvo transverse obtuso concavo, et pollinia quatuor semiovoidea distinguitur.

Plant medium to large, epiphytic, ascending-caespitose, roots stout. Ramicauls erect, stout, 6-10 cm long, enclosed by a tubular sheath from below the middle, and another tubular sheath at the base. **Leaf** erect, coriaceous, obovate, rounded at the apex, narrowly petiolate, 8-12 cm long including the petiole 2-3 cm long, 2-3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, more or less secund, subdensely many-flowered raceme, up to 20 cm long including the peduncle 3-4 cm long, the spathe fugacious, from below the apex of the ramicaul; floral bracts inflated, acute, 5 mm long; pedicels 3-4 mm long; ovary 2 mm long; **sepals** pale yellow-green, glabrous, the dorsal sepal broadly ovate, obtuse, 7 mm long, 5.5 mm wide, incompletely 7-veined, connate ca. 1.5 mm to the lateral synsepals, the lateral sepals broadly elliptical-ovate, obtuse, 7 mm long, 5 mm wide, 5-veined, connate to near the middle, with a small mentum at the base; **petals** green, transversely reniform, concave below the broadly rounded apex, with a prominent, transverse callus, 1.5 mm long, 2.5 mm wide, 3-veined; **Lip** green, transversely cuneate, 1.25 mm long, 1.5 mm wide, 0.75 mm deep, concave within the broadly obtuse apex, the bar a shallowly cleft transverse callus, with a low, indistinct callus on the dorsum, the base truncate, hinged to the column-foot; **column** stout, 1.25 mm long and wide, the anther and the bilobed stigma apical, the pollinia 4, two pairs of semiovoid, naked pollinia.

Azuay: Río Cumbe valley, south of Cumbe, alt. 2900-3000 m, 9 June 1979, *B. Løjtnant A. & U. Molau 14361* (Holotype: AAU; Isotype: GB), C. Luer illustr. 20542.

This most unusual species is found in southern Ecuador at a high altitude. It is characterized by an ascending, caespitose habit; ramicauls clad in tubular sheaths; and long-petiolate, obovate leaves with a rounded apex that are surpassed by a subdense

raceme. The sepals are broad and obtuse with the laterals semiconnate. The transverse petals possess a distinct, transverse callus. The lip is small and concave within a broadly obtuse apex. The pollinia are equal and four in number: two pairs of semiovoid, naked pollinia. No other species is known with four pollinia, but often the pollinia are absent, so the pollinia of numerous collections are unknown.

296. **Stelis thamiostachya** Luer & Endara, sp. nov.

Ety.: From the Greek *thamiostachys*, "with crowded spikes," referring to the inflorescence.

Planta mediocris grandisvs dense caespitosa, racemis pluribus folio crassissimo oblongo brevioribus, sepalis crassis late ovatis marginatis intus minute papillosis, et labello obtuso antice concavo distinguitur.

Plant medium in size to large, epiphytic, densely caespitose; roots coarse. Ramicauls erect, stout, 6-11 cm long, enclosed by 3-4 loose, imbricating, tubular sheaths. **Leaf** erect, thickly coriaceous, oblong, obtuse, 8-11 cm long including a petiole ca. 0.5 cm long, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** 6-8, crowded, stout, secund, many-flowered racemes with most flowers open simultaneously, 6-8 cm long, flowering from the base, with a broad, thin spathe 6-7 mm long and wide, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3.5 mm long; pedicels 2 mm long; ovary 1 mm long; flowers yellow, **sepals** thick, margined, cellular papillose within, broadly ovate, obtuse, 3-veined, connate below the middle, the dorsal sepal 2.5 mm long, 2.6 mm wide, the lateral sepals 2 mm long, 2.5 mm wide; **petals** transversely ovate, thickened along the broadly obtuse apex, shallowly concave, 0.6 mm long, 1 mm wide, 3-veined; **lip** thickly sub-cuneate, 0.8 mm long, 1 mm wide, 0.6 mm deep, concave anteriorly within the broadly obtuse, apical margin, the bar thick, with a glenion, the dorsum with a solitary callus, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the anther and bilobed stigma apical.

Azuay: south of Cumbe, new road to Girón, alt. 3000 m, 27 Febr. 1982, *C. Luer & A. Pozo 7030* (Holotype: SEL).

Superficially, this species from southeastern Ecuador resembles in habit *Crocodeilanthe floribunda* (Poepp. & Endl.) Luer. It is similarly characterized by stout ramicauls clothed by loose, imbricating sheaths, and several congested, simultaneously flowered racemes shorter than the leaf. However, the sepals are thick and cellular-papillose within; the petals are proportionately small, three-veined and with a thick, round margin; and the lip is shallow, subcuneate, and concave anteriorly with a glenion.

If one were presbyopic, and had to rely only on some similarities in DNA analyses for classification, it could be understood how *Crocodeilanthe floribunda* could be conceived to be *Stelis floribunda* (Poepp. & Endl.) Pridgeon & M.W.Chase.

297. **Stelis thermatica** Luer & Dodson, sp. nov.

Ety.: From the Greek *thermaticus*, "capable of tolerating heat," referring to the locality.

Planta grandis ascendens-caespitosa, racemo folio anguste elliptico multilongiore, sepalis late ovatis obtusis intus minute pubescentibus, petalis extus minute pubescentibus et labello obtuso antice concavo dorsaliter calloso distinguitur.

Plant large, epiphytic, ascending-caespitose; roots slender. Ramicauls erect, slender 5-10 cm long, with a loose, tubular sheath on the upper half, and 2-3 imbricating sheaths on the lower half. **Leaf** erect, coriaceous, narrowly elliptical, acute, 11-14 cm long including a petiole ca. 0.5 cm long, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, many-flowered raceme with many flowers open simultaneously, 20-28 cm long, including a peduncle 7-10 cm long, with a narrow spathe 10-18 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 5 mm long below to 3 mm long above; pedicels 2 mm long; ovary 1.5 mm long; flowers green, **sepals** densely short-pubescent within, broadly ovate, obtuse, slightly acuminate, 3-veined, but faintly and incompletely 5-veined, connate below the middle, the dorsal sepal 2.25 mm long, 2.75 mm wide, the lateral sepals similar; **petals** transversely obovate, concave, thickened along the broadly obtuse apex, minutely pubescent externally, 0.6 mm long, 1 mm wide, 3-veined; **lip** thickly subcuneate, 0.6 mm long, 0.9 mm wide, 0.6 mm deep, concave anteriorly within the broadly obtuse, apical margin, the bar thick, tall centrally with a glenion, continuous with an oblong, rounded callus on the dorsum, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the yellow anther and bilobed stigma apical.

Esmeraldas: seasonally dry forest near Esmeraldas, alt. 100 m, Sept. 1980, flowered in cultivation at SEL, 23 Feb. 1982, *C. Luer, J. Luer, C. & P. Dodson 6839* (Holotype: SEL).

This species occurs in the seasonally dry lowland around Esmeraldas in coastal Ecuador. It is a large plant with loose sheaths on the ramicaul, and narrowly elliptical leaves far exceeded by a crowded, many-flowered raceme. The sepals are ovate, minutely pubescent within and five-veined. The petals are truncate and three-veined, and the lip is an unremarkable type-A.

298. **Stelis translucens** Luer & Hirtz, sp. nov.

Ety.: From the Latin *transluscens*, "translucent," referring to the visibility of the central apparatus through the sepals of an unopened or closed flower.

Planta parva caespitosa, racemo plurifloro folio elliptico leviter excedenti, bracteis floribus conspicuuis, sepalis translucentibus late ovatis, labello transverse subquadrato late obtuso dorsaliter calloso.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender 1-2 cm long, with a tubular sheath from below the middle, and another sheath at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse 3-4.5 cm long including a petiole ca. 1 cm long, 1-1.8 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subcongested, distichous, several-flowered raceme, 4-5.5 cm long, including a peduncle 1.5-2 cm long, with a narrow spathe 3 mm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acute, 2.5-3 mm long; pedicels 2 mm long; ovary 2 mm long; flowers yellow, **sepals** glabrous but cellular, translucent, expanded, broadly ovate, obtuse, the dorsal sepal 4.5 mm long, 5 mm wide, 3-veined, connate 2 mm to the laterals, the lateral sepals oblique, 3 mm long, 4 mm wide, connate 1 mm; **petals** transversely ovate, thickened along the broadly rounded apex, 1.2 mm long, 1.6 mm wide, 3-veined, concave basally below a transverse callus; **lip** thickly subquadrate, 0.75 mm long, 1.2 mm wide, 0.75 mm deep, concave anteriorly within the thick, broadly rounded margin, the bar thick with a shallow glenion, but with a small, round, deep cavity in the center of the glenion, the dorsum with a central, round, slightly irregular callus flanked by a few, small, incomplete calli, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the yellow anther and bilobed stigma apical.

Morona-Santiago: Chigüinda, alt. 2800 m, 28 July 2004, *A. Hirtz & family 8966* (Holotype: MO), C. Luer illustr. 20900.

This little species is identified by only a combination of minor characters. The ramicauls are shorter than elliptical leaves, and a subdense, several-flowered raceme with conspicuous, infundibular sheaths equals or slightly exceeds the leaves. The sepals are yellow, broadly ovate, obtuse, and deeply connate into a slightly convex flower. When the flowers are closed, the petals, lip and column are visible through the translucent sepals. The petals are transverse with a thickened margin and with a transverse callus. The lip is transverse with a broadly rounded apex, and a small, deep cavity is present in an otherwise shallow glenion.

299. **Stelis trichoglottis** Luer & Dodson, sp. nov.

Ety.: From the Greek *trichoglottis*, "a hairy trachea," referring to the interior of the flower.

Planta mediocris caespitosa, racemo multifloro folio oblongo plus minusve aequilongo, sepalis clusis intus villosis, petalis minutis transversis et labello subquadrato apiculato distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender 6-8 cm long, with a tubular sheath from below the middle, and 2-3 imbricating sheaths toward the base. **Leaf** erect, coriaceous, oblong, obtuse 7-9 cm long including a petiole 1 cm long, 1.5-1.8 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme, 9-11 cm long, including a peduncle 1.5 cm long, with a narrow spathe 6-7 mm long, from an annulus below the apex of the ramicaul; floral bracts tubular, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; flowers bright yellow, **sepals** similar, fleshy, densely long-villous within, only slightly opening, ovate, subacute, 2 mm long, 2 mm wide, 3-veined, connate basally; **petals** transversely elliptical, slightly thickened along the broadly obtuse apex, 0.6 mm long, 0.9 mm wide, 3-veined; **lip** thickly subquadrate, 0.9 mm long, 0.9 mm wide, 0.5 mm deep, concave anteriorly within the sharply apiculate margin, the bar thick, cleft a third its length, dorsum shortly pubescent toward the base, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the yellow anther and bilobed stigma apical.

Carchi: Bolívar, above La Paz, alt. 3100 m, 18 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. Del Hierro 18722* (Holotype: MO).

This species from a high altitude in northern Ecuador is characterized by the oblong leaf that is slightly surpassed by the raceme of tiny, round flowers that barely open. Within, the sepals are densely villous; the petals are proportionately small; and the lip is sharply apiculate.

Stelis trichoglottis is similar to *S. lanata* Lindl., but differs in having a densely caespitose habit with oblong leaves instead of loosely ascending with narrowly elliptical leaves. The floral bracts are short and inconspicuous instead of being larger and conspicuous. The petals are proportionately small without a transverse callus. The lip is sharply apiculate. The stigmatic processes project beyond the petals instead of being enclosed within the petals.

300. **Stelis tricula** Luer & Hirtz, sp. nov.

Ety.: From the Latin *triculus*, "a little trifle," referring to the diminutive plant.

Planta minuta caespitosa, racemo paucifloro folio anguste elliptico duplolongiore, sepalis glabris membranaceis late ovatis obtusis inter se profunde connatis, petalis tenuis lunatis, et labello peltato plano ecalloso distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender 7-10 mm long, enclosed by two, ribbed, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, 12-15 mm long including a petiole 2-3 mm long, the blade 5-6 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, distantly 2- to 3-flowered, simultaneous raceme, 2-3 cm long, including the peduncle 1.5-2 cm long, from below the apex of the ramicaul; floral bracts oblique, acute, 1 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** membranous, rose, glabrous, broadly ovate, obtuse, the dorsal sepal 2 mm long, 2.75 mm wide, 3-veined, connate to the lateral sepals for nearly half the length, the lateral sepals held forward, 1.75 mm long, 2 mm wide, 3-veined, connate 1 mm; **petals** rose, transversely lunate, 0.6 mm long, 1 mm wide, 3-veined, the rounded margin slightly thickened; **lip** dark rose, subquadrate, broadly rounded at the apex, truncate across the bar, then the dorsum deflexed, 0.25 mm long, ecallous, 1.6 mm wide, 1.6 mm deep, the anterior surface plain, shallowly concave, the deflexed base hinged to the base of the column; **column** 0.5 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Napo: along Río Jatunyaco, alt. 800 m, 26 Dec. 2002, *A. Hirtz & family 8447* (Holotype: MO), C. Luer illustr. 20839.
Pastaza: vicinity of Puyo, alt. 750-1000 m, Aug. 1939, *A.F. Skutch 4419* (AMES).

This tiny species is superficially similar to sympatric *Stelis buccella* Luer & Hirtz, but it is distinguished from the latter by a plain, slightly concave surface of the lip below the transverse, truncate bar, behind which the short dorsum is deflexed without a callus. The sepals are broad and margined with the laterals antrorse, simulating a concave synsepal. The petals are semilunate and three-veined.

301. **Stelis triplex** Luer & Hirtz, sp. nov.

Ety.: From the Latin *triplex*, "triple," referring to the three similar sepals.

Planta mediocris caespitosa, racemo multifloro supra medium congesto foliis obovatis multilongiore, sepalis similis anguste triangularibus, petalis tenuis uninervis, et labello late ovoideo obtuso.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-5 cm long, enclosed by a ribbed, tubular sheath from below the middle and another at the base. **Leaf** erect, coriaceous, obovate, acute to round at the apex, 3.5-5.5 cm long including a petiole 0.5-1 cm long, the blade 1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, simultaneously many-flowered raceme, loosely flowered below, congested above, to 30 cm long, including the peduncle ca. 10 cm long, from below the apex of the ramicaul with a slender spathe 1 cm long; floral bracts infundibular, inflated, oblique, acute, 2-3 mm long; pedicels 1.5 mm long; ovary 1.75 mm long; **sepals** white, suffused with purple basally, glabrous, expanded, nearly equal in size and shape, narrowly triangular-ovate, acute, 3 mm long, 2 mm wide, 3-veined, connate basally; **petals** purple, membranous, transversely elliptical, 1.2 mm long, 1.75 mm wide, 1-veined, the broadly rounded margin slightly thickened; **lip** purple, broadly ovoid to subquadrate, 1 mm long, 1.3 mm wide, 1 mm deep, shallowly concave within the broadly obtuse apex, the bar slightly convex with a slightly elevated glenion that extends from the base of the lip down the anterior surface of the bar to near the apex, the base truncate, hinged to the base of the column; **column** 1.5 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: Limón, alt. 2400 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 27 July 2004, *A. Hirtz 8933* (Holotype: MO), C. Luer illustr. 20903.
Azuay: north of Sevilla de Oro, alt. 9,000-10,000 ft., 16 Aug. 1945, *W.H. Camp E-4737* (AMES, NY), C. Luer illustr. 21026; Río Collay, south of El Pan, alt. 2650-3290 m, 6 July 1943, *J.A. Steyermark 53381* (AMES).

This species from southeastern Ecuador is characterized by a long, simultaneously many-flowered raceme of small flowers with narrow, triangular sepals similar in size and shape; the petals are rounded and single-veined; and the lip is obtuse and shallowly concave with a glenion extending over the bar from the base to near the tip.

302. **Stelis tropex** Luer & Endara, sp. nov.

Ety.: From the Greek *tropex*, "an oar," referring to the shape of the leaves.

Planta parva breviter repens, folio obovato ad apicem rotundo ad basim attenuato racemo multifloro breviore, sepalis minutis obtusis intus ramentaceis, petalis uninervis, et labello minutissimo oblongo concavo distinguitur.

Plant small, epiphytic, shortly repent, the rhizome stout, 1-10 mm long between ramicauls; roots slender. Ramicauls erect, stout, 1.5-3.5 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, obovate, obtuse to round at the apex, 2.5-5.5 cm long including a petiole 0.5-1 cm long, the blade 0.8-1.4 cm wide, long-acuminate below into the petiole. **Inflorescence** an erect, congested, distichous, simultaneously many-flowered raceme, 6-9 cm long including the peduncle 3-4 cm long, with a spathe 3-4 mm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, obtuse, 1 mm long; pedicels 0.75 mm long; ovary 0.5 mm long; flowers yellow-green; **sepals** glabrous externally, ramentaceous within, broadly ovate, obtuse, 1 mm long, 1 mm wide, 3-veined, connate below the middle; **petals** thin, shallowly concave, transversely oblong, the apex transverse with the margin slightly thickened, and with the ends rounded, 0.4 mm long, 0.5 mm wide, 1-veined; **lip** oblong, 0.3 mm long, 0.3 mm wide, 0.4 mm deep, the apex broadly rounded with a thin margin, minutely apiculate, the bar with a concave glenion, the dorsum with a microscopically pubescent callus, the base truncate, hinged to the base of the column; **column** stout, with the gynostemium elongate, 0.5 mm long, 0.3 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Loja: Celica, Alamor road, alt. 1250 m, 18 Feb. 1985, *G. Harling & L. Andersson 22201* (Holotype: GB), C. Luer illustr. 20516.

According to the collector, this little species, known from only this collection, grew in great masses on tree trunks. Racemes of tiny flowers surpass the most distinctive leaves that are obovate with rounded tips and long-acuminate bases. The broadly ovate sepals, only one millimeter long and wide, are smooth outside and chaffy inside. The petals are single-veined, and the minute, rounded lip is concave anteriorly with a minute, subapiculate margin.

303. **Stelis umbonis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *umbo, -onis*, "of a boss, or knob," referring to the callus on the dorsum of the lip.

Planta parva caespitosa, racemo laxe flexuoso multifloro folio elliptico duplolongiore sepalis transverse ovatis obtusis, petalis lunatis, labello transverse ovoideo ad dorsum unicalloso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1.5-2 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse to round at the apex, 2.5-3 cm long including a petiole 0.5-0.8 cm long, the blade 0.7-0.8 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, distichous, successively many-flowered raceme with 2-3 flowers open simultaneously, to 11 cm long including the peduncle 3 cm long, the spathe 2-3 mm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acute, 2 mm long; pedicels 1.5 mm long; ovary 1 mm long; flowers dark yellow, **sepals** glabrous, transversely ovate, obtuse, the dorsal sepal 4 mm long, 5.25 mm wide, 3-veined, connate to the laterals to near the middle, the lateral sepals broadly ovate, obtuse, oblique, 3 mm long, 3.75 mm wide; **petals** thin, transversely semilunate, broadly rounded at the apex, concave below the well-defined thickened margin, and concave below a well-defined transverse callus, 0.8 mm long, 1.2 mm wide, 3-veined; **lip** transversely oblong-ovate, 0.5 mm long, 1.3 mm wide, 0.5 mm deep, the apex broadly rounded with a thin margin, the bar with a glenion, the dorsum with a prominent, rounded, midline callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.3 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Loja: Jimbura, alt. 3000 m, 1 Feb. 2003, *A. Hirtz, E. Sánchez & W. Bautz 8484* (Holotype: MO), C. Luer illustr. 20844.

This little species is distinguished by a combination of frequently seen features. The elliptical leaves, about as long as the stout ramicauls, are surpassed bya loose, distichous, flexuous raceme with about a dozen flowers, two or three open simultaneously. The sepals are glabrous and transversely ovate; the petals are lunate with a well-defined transverse callus; and the lip is short and transverse with a single, prominent, spherical callus on the dorsum.

304. **Stelis uniflora** Luer & Hirtz, sp. nov.

Ety.: From the Latin *uniflorus*, "with one flower," referring to the inflorescence.

Planta perparva caespitosa, inflorescentia uniflora inversa pedunculo folio elliptico plus minusve aequilonga, sepalis minute ciliatis ovatis, petalis transverse oblongis, labello illi *Stelis argentatae* Lindl. similis distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, proportionately stout, 5-8 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 1.5-3 cm long including a petiole 0.3-0.5 cm long, the blade 0.5 cm wide, cuneate below into the petiole. **Inflorescence** erect, single-flowered, the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bract oblique, acute, 2 mm long; pedicel 1.5 mm long; ovary 1.5 mm long; flowers non-resupinate, **sepals** purple with thin white edge, minutely ciliate, ovate, the dorsal sepal subacute, 4 mm long, 3.5 mm wide, 3-veined, connate basally to the laterals, the lateral sepals broadly ovate, obtuse, oblique, 3 mm long, 3.5 mm wide; **petals** purple, thin, transversely oblong, broadly rounded at the apex, concave below the thickened margin, 0.8 mm long, 1.3 mm wide, 3-veined; **lip** purple, subspherical, 0.8 mm long, 0.8 mm wide, 0.6 mm deep, the apex broadly rounded with a thin margin with a minute, central apiculum, the bar low with a long, channeled glenion extending on the dorsum to the base, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.9 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: Plan de Milagro, alt. 1500 m, collected and cultivated at Ecuagenera, Gualaceo, flowered in cultivation 11 Jan. 2004, *A. Hirtz 8619* (Holotype: MO), C. Luer illustr. 20850.

This little species is the only single-flowered species known in section *Stelis*. *Stelis ann-jesupiae* is the only single-flowered species known in section *Humboldtia*. The former is characterized by the solitary, non-resupinate flower borne by a capillary peduncle about as long as the leaf. The margins of the purple sepals are white and minutely ciliate. The broad petals are three-veined. The apex of the lip is round with a minute apiculum on the margin. A long glenion extends across the dorsum.

305. **Stelis wilhelmii** Luer, sp. nov.

Ety.: Named for Sherman Wilhelm, formerly of Sarasota, FL, co-collector of this species.

Planta mediocris fasciculata, racemo folio elliptico acuti plus minusve aequilongo, floribus minutis crassis, sepalis ovatis obtusis intus breviter pubescentibus, petalis transversis uninervis, et labello subquadrato obtuso distinguitur.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, fasciculate, 3-6 cm long, with a tubular sheath from below the middle, and 2-3 imbricating sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, 6-9 cm long including a petiole 1-1.5 cm long, 1-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, many-flowered raceme with many flowers open simultaneously, 7-8 cm long, including a peduncle ca. 2 cm long, with a narrow spathe 8-10 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 0.75 mm long; ovary 0.5 mm long; flowers light yellow; **sepals** thick, short-pubescent within, broadly ovate, obtuse, 3-veined, connate basally, the dorsal sepal 1.5 mm long, 1.2 mm wide, the lateral sepals oblique, 1.2 mm long, 1 mm wide; **petals** transversely obovate-subquadrate, shallowly concave, thickened externally and at the obtuse apex, 0.5 mm long, 0.6 mm wide, 1-veined; **lip** subquadrate, 0.5 mm long, 0.5 mm wide, 0.3 mm deep, concave anteriorly within the broadly obtuse, apical margin, the bar thick, elevated centrally with a cleft, the dorsum with a minutely pubescent, cruciate callus, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long, 0.3 mm wide, with the anther and minute lobes of the stigma apical.

Pastaza: forest below Baños, alt. ca. 1500 m, July 1975, flowered in cultivation at SEL, 24 Oct. 1981, *C. Luer, G. Luer & S. Wilhelm 6539* (Holotype: SEL).

This species, known from a single collection, is apparently rare in eastern central Ecuador. Vegetatively, the acute, elliptical, petiolate leaves are similar to those of *Stelis tridentata* Lindl., but the flowers of *S. wilhelmii* are minute with fleshy, ovate sepals that are shortly pubescent within. The transverse petals are single-veined, and the lip is obtuse and concave anteriorly.

306. **Stelis zamorae** Luer & Hirtz, sp. nov.

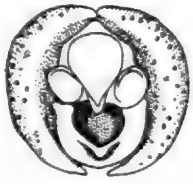
Ety.: Named for the locality "Zamora," whence the species is reported.

Planta perparva caespitosa, racemo laxe paucifloro folio spathulato longiore, sepalis late ovatis minute pubescentibus, petalis crassis transverse lunatis, et labello transverse subquadrato margine anteriore crasso ad dorsum callo rotundo distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, proportionately stout, 4-6 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, obovate, round at the apex, 1.5-2.5 cm long including a petiole 0.5 cm long, the blade 0.8-1 cm wide, cuneate below into the petiole. **Inflorescence** an erect, flexuous, successively few-flowered raceme, to 5 cm long, including the peduncle ca. 2 cm long, from a node below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicel 2 mm long; ovary 1 mm long: **sepals** yellow, suffused with olive basally, minutely short-pubescent, broadly ovate, obtuse, the dorsal sepal 2.5 mm long, 3 mm wide, 3-veined, connate 1 mm basally to the laterals, the lateral sepals 2 mm long, 2.5 mm wide; **petals** red, thick, glandular-cellular, transversely lunate, rounded at the apex with a broad, flat margin, concave basally, 0.5 mm long, 1.5 mm wide, 3-veined; **lip** red, subquadrate, 0.5 mm long, 0.75 mm wide, 0.5 mm deep, the apex broadly rounded with a wide, cellular-glandular margin, the bar low with a small glenion, the dorsum with a round, cellular callus, the base hinged to the base of the column; **column** stout, 0.5 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: "Zamora," alt. 1300 m, without further detail, collected and cultivated at Ecuagenera, Gualaceo, flowered in cultivation 2 Feb. 2002, *A. Hirtz 8065* (Holotype: MO), C. Luer illustr. 20861.

This little species was collected in "Zamora" and cultivated at Ecuagenera. It is not known from any other collection. It is characterized by small, obovate leaves that are exceeded by a lax, few-flowered raceme. The sepals are broadly ovate, and the petals are proportionately large with wide margins. The apex of the lip is round with a broad, cellular margin; the bar has a small glenion; and a round callus sits on the dorsum.



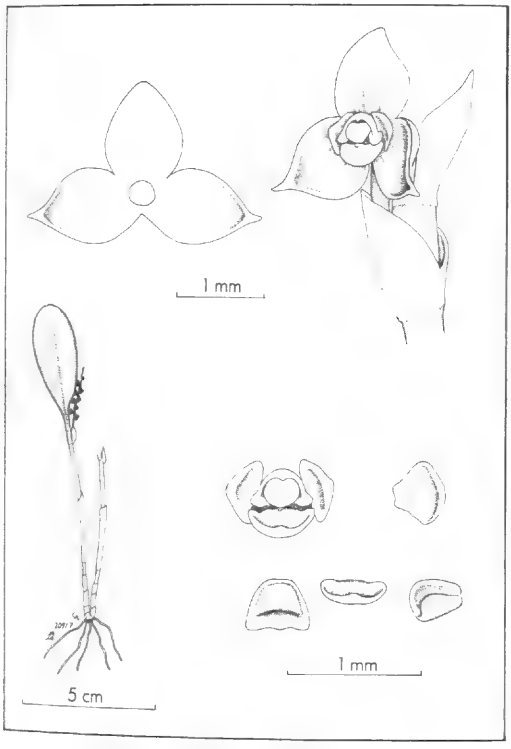


Fig. 222. Stelis abbreviata

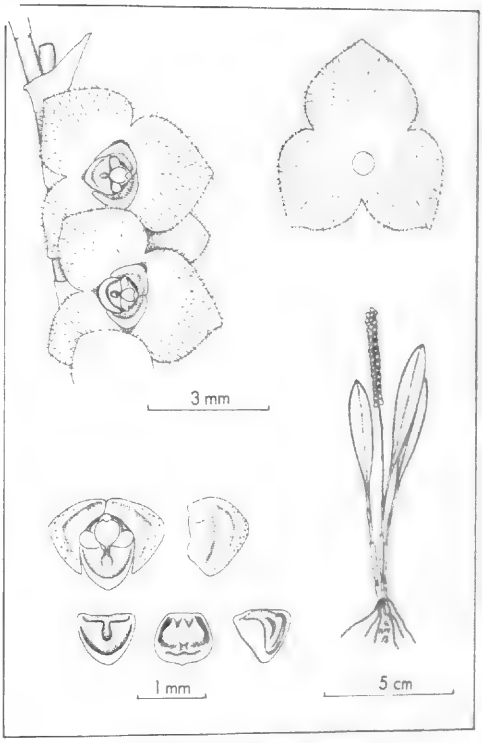


Fig. 223. Stelis adinostachya

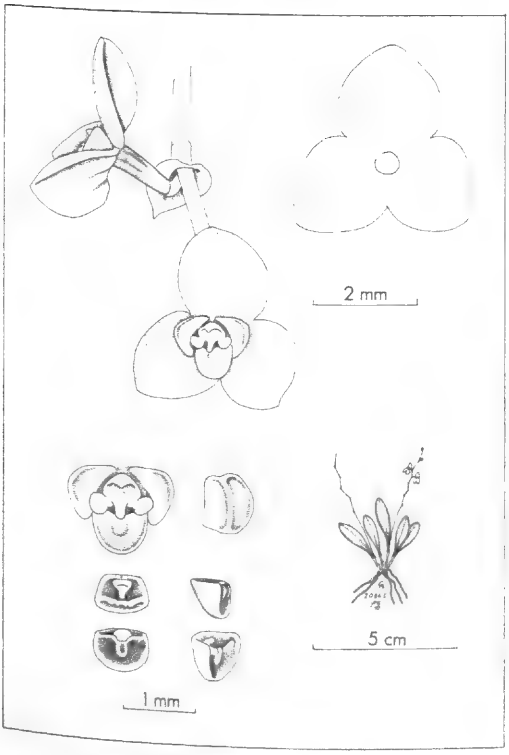


Fig. 224. Stelis aliquantula

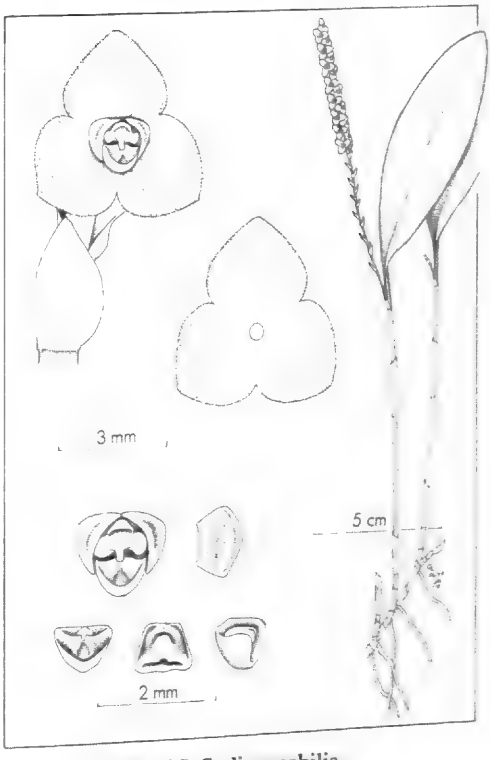


Fig. 225. Stelis amabilis

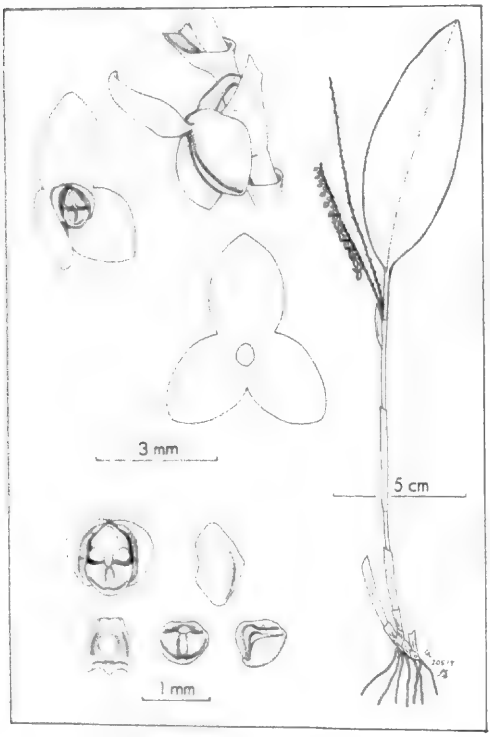


Fig. 226. Stelis anderssonii

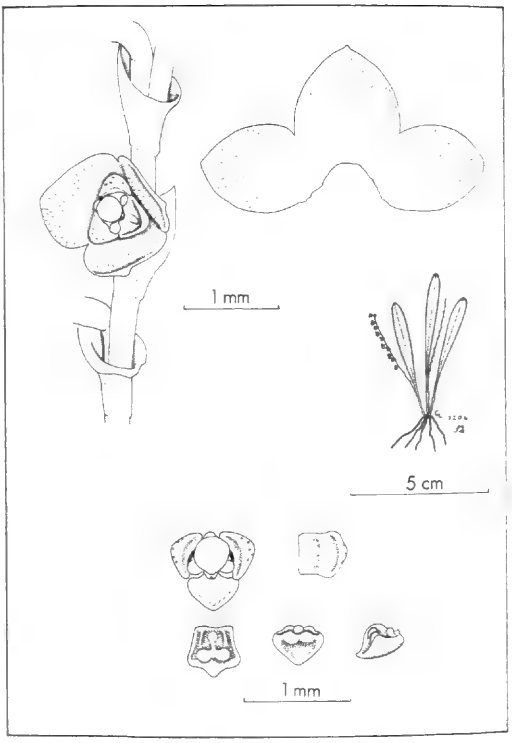


Fig. 227. Stelis aphidifera

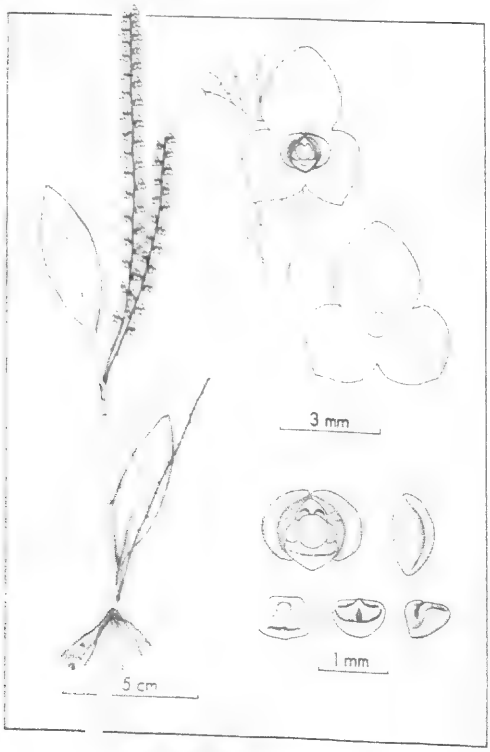


Fig. 228. Stelis asplundii

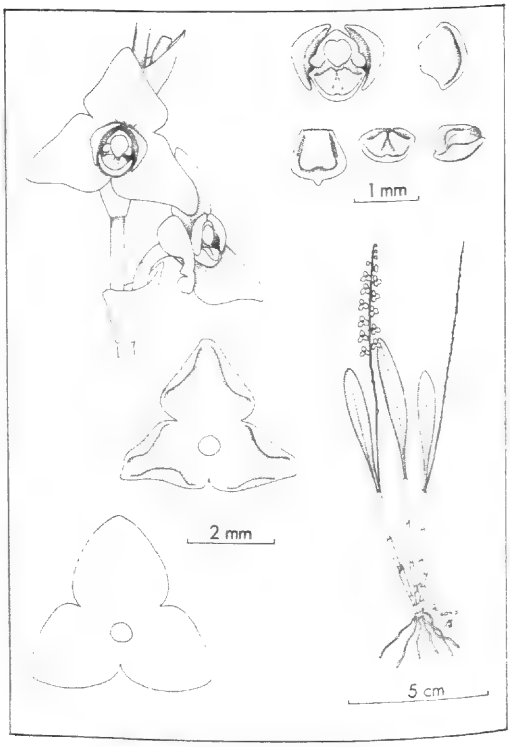


Fig. 229. Stelis atrocaerulea

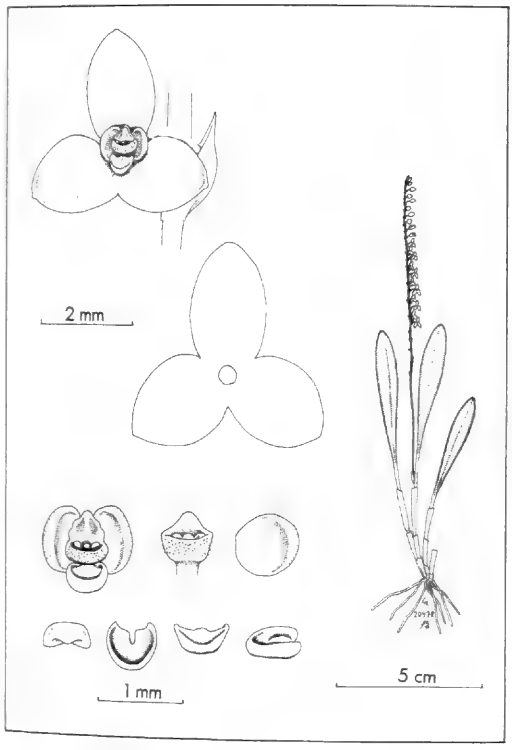


Fig. 230. Stelis barbimentosa

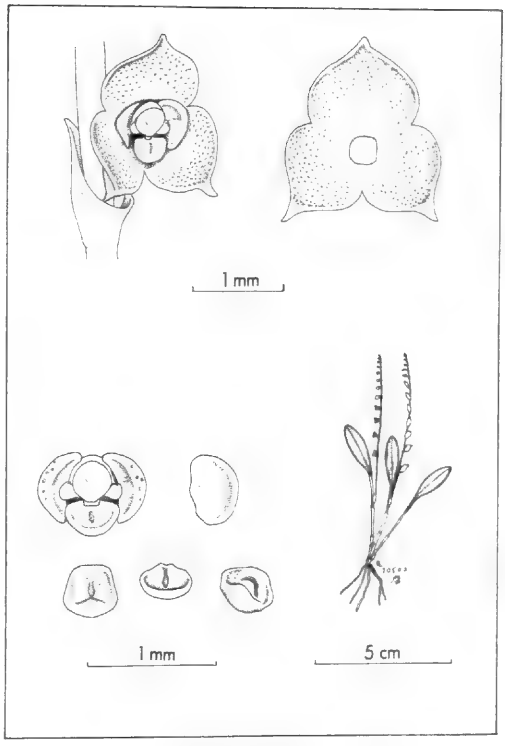


Fig. 231. Stelis brevissimicaudata

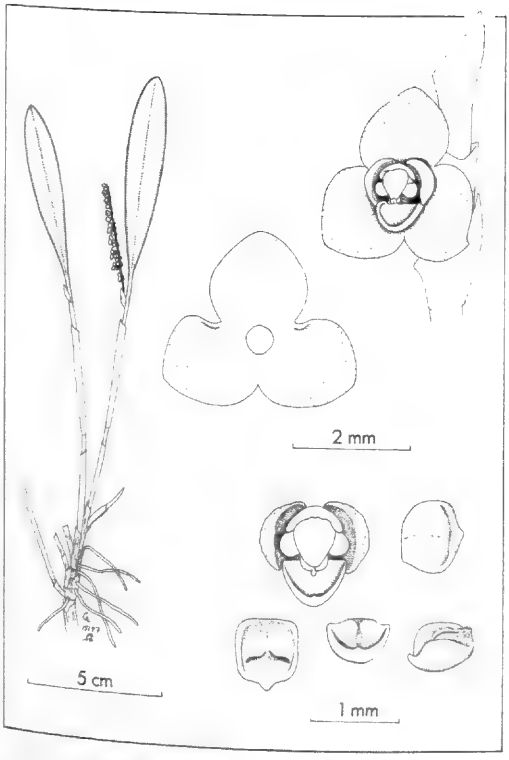


Fig. 232. Stelis carchica

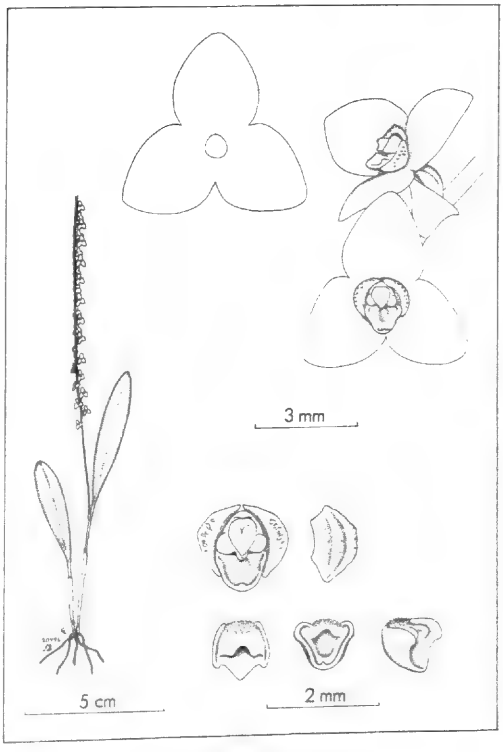


Fig. 233. Stelis cavernula

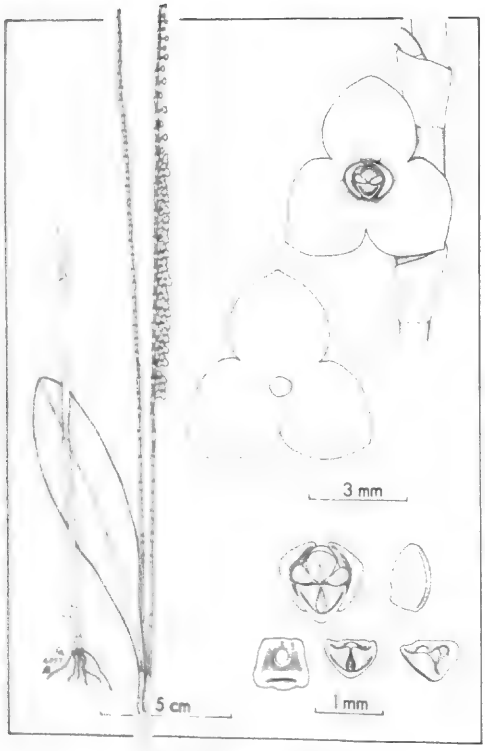


Fig. 234. Stelis celsa

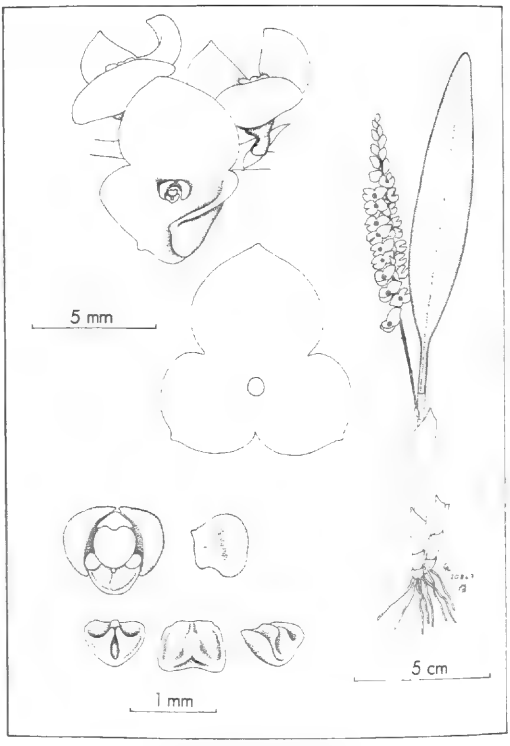


Fig. 235. Stelis coleata

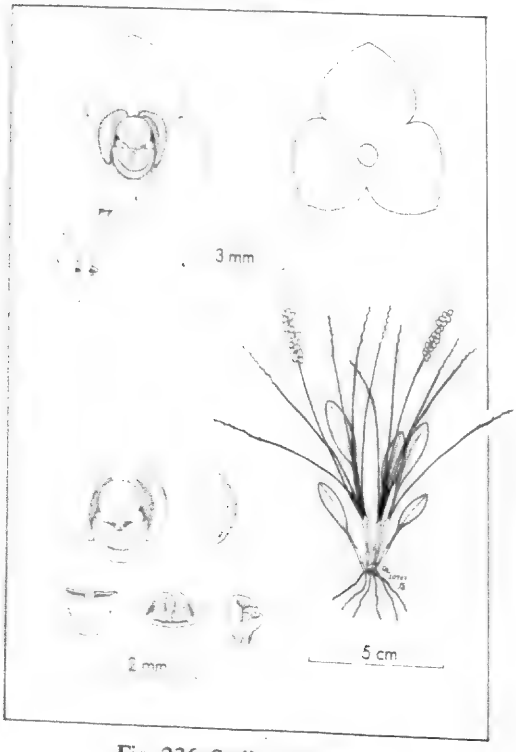


Fig. 236. Stelis copiosa

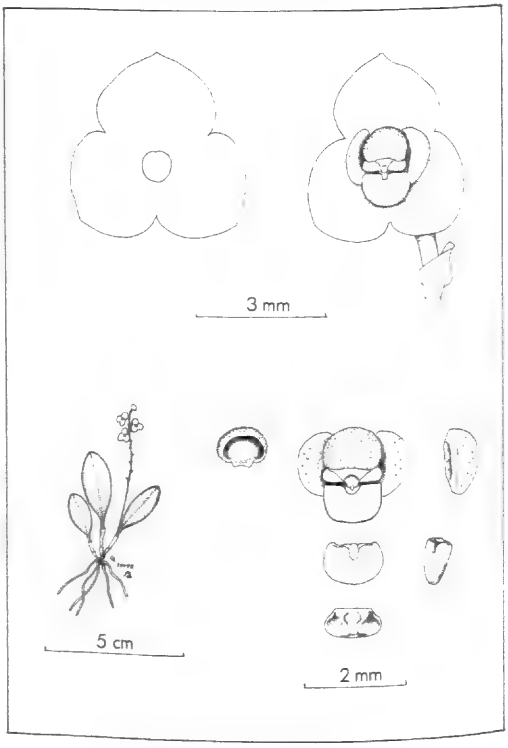


Fig. 236a. Stelis copiosa

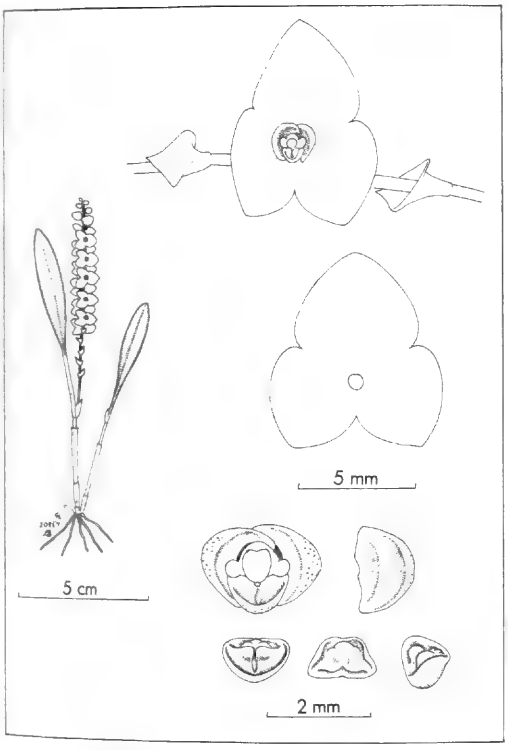


Fig. 237. Stelis coracina

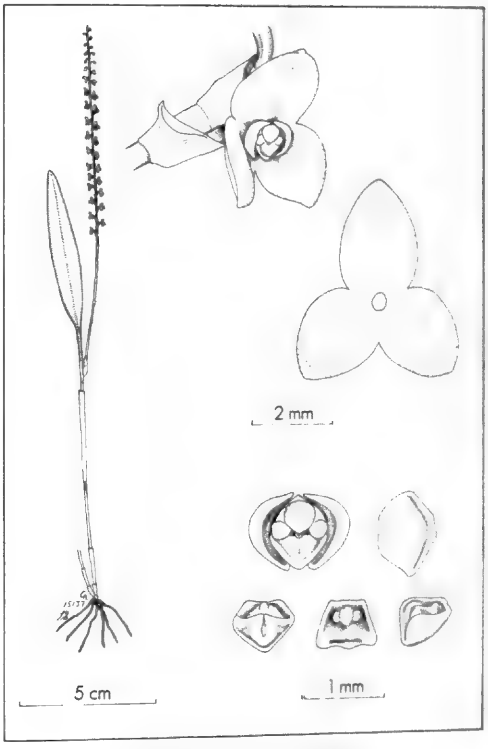


Fig. 238. Stelis creodantha

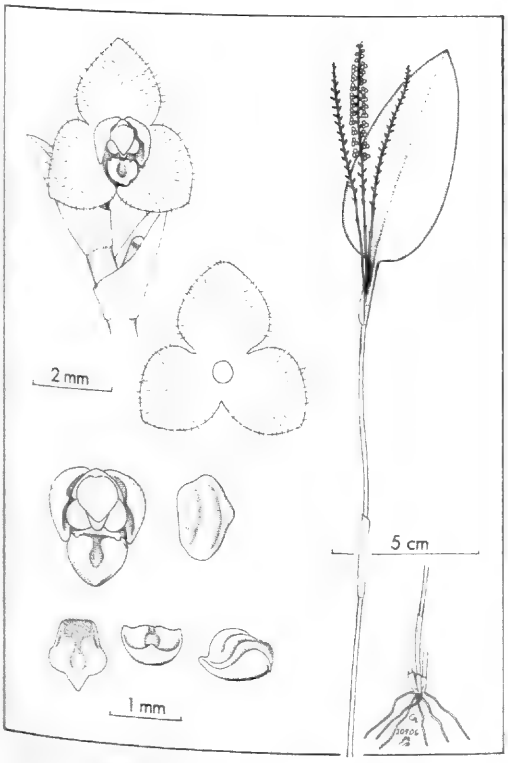


Fig. 239. Stelis crinita

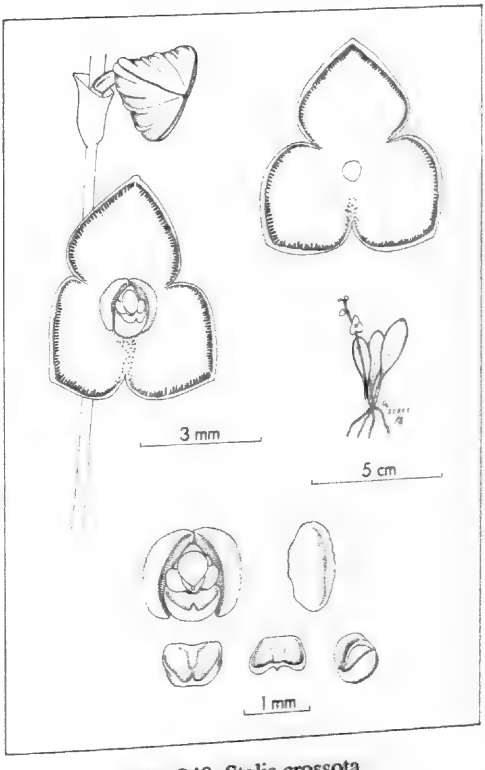


Fig. 240. Stelis crossota

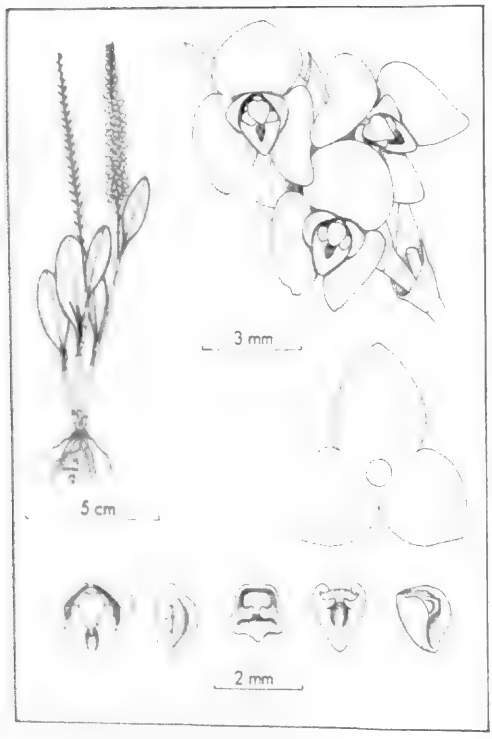


Fig. 241. Stelis cryophila

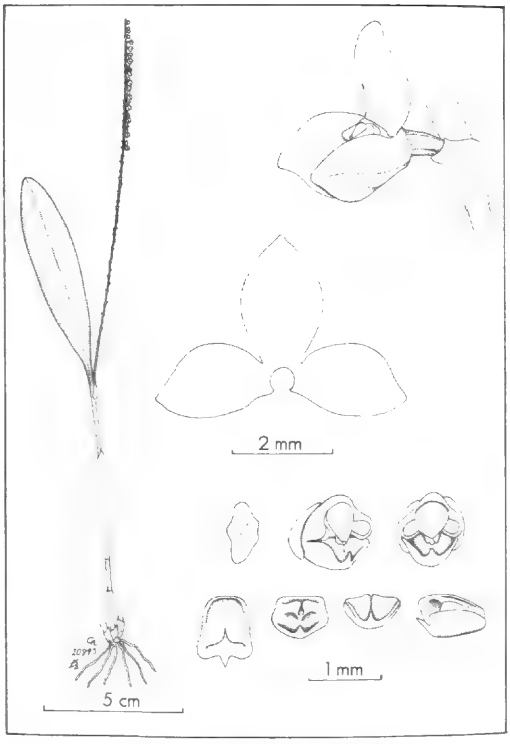


Fig. 242. Stelis cryptopetala

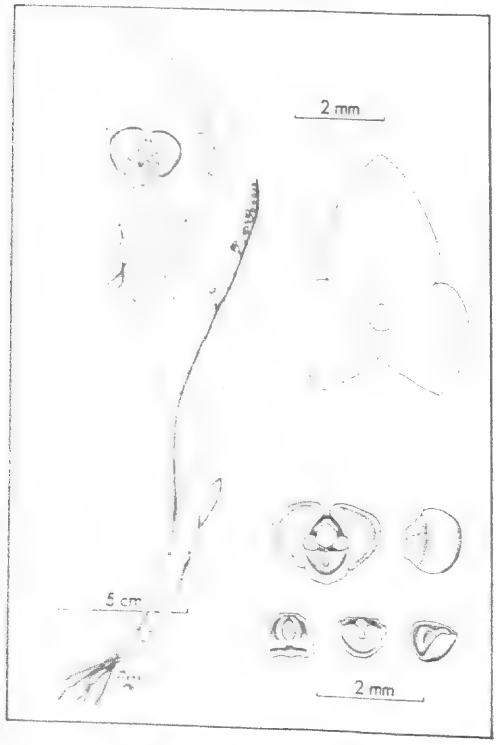


Fig. 243. Stelis delicata

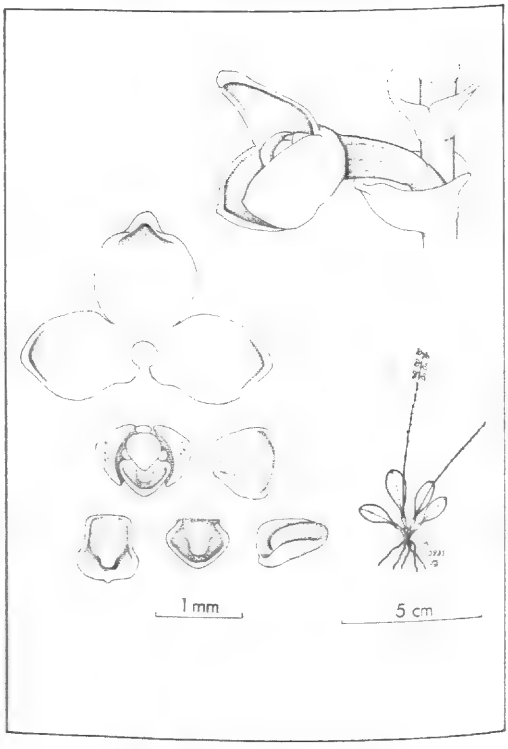


Fig. 244. Stelis dimidiata

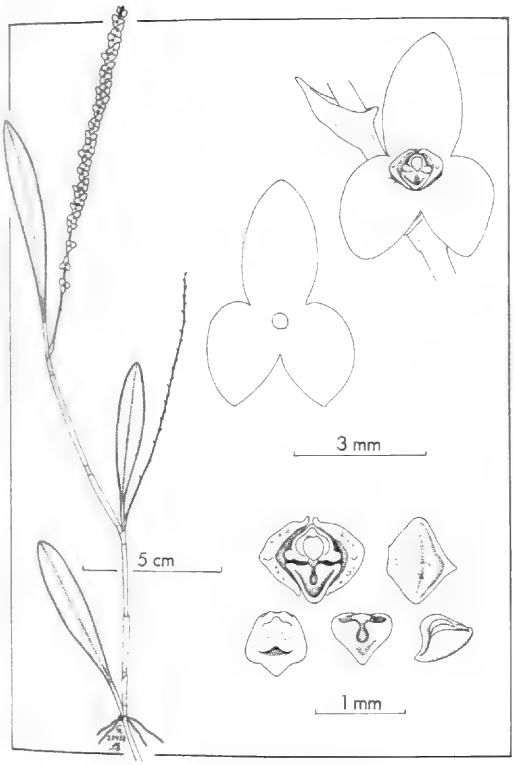


Fig. 245. Stelis dissimulans

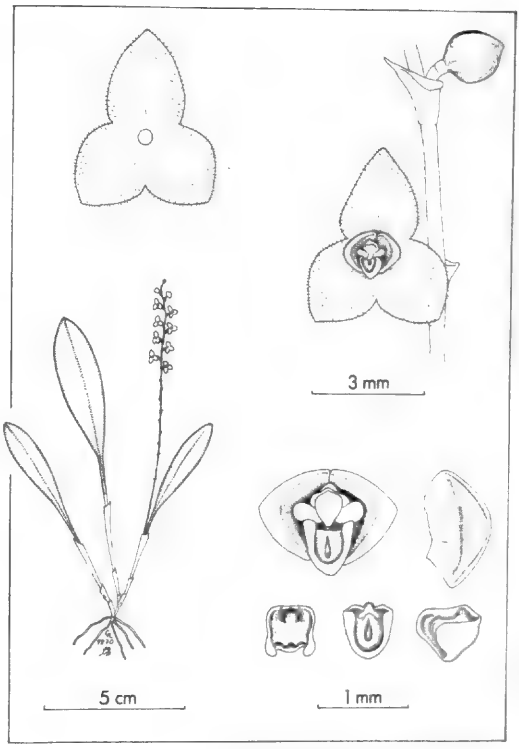


Fig. 246. Stelis diversifolia

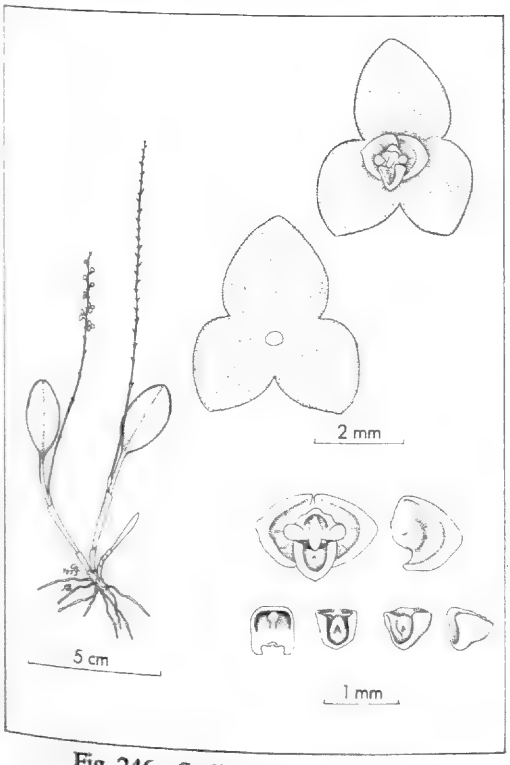


Fig. 246a. Stelis diversifolia

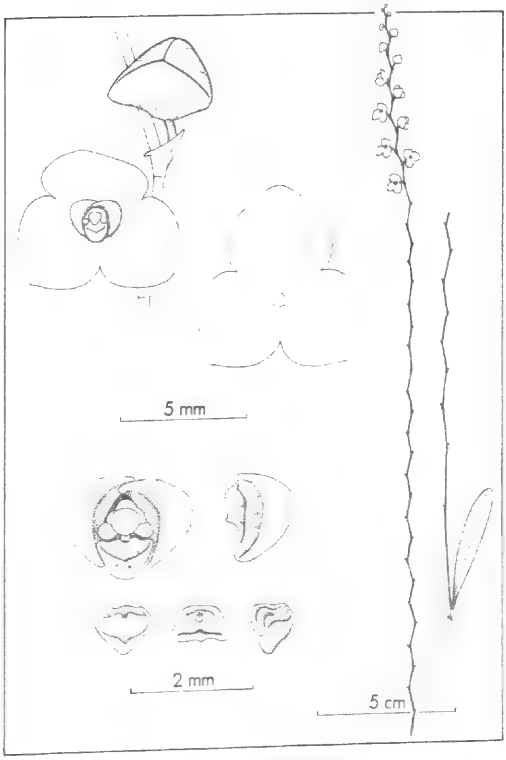


Fig. 247. Stelis dolichantha

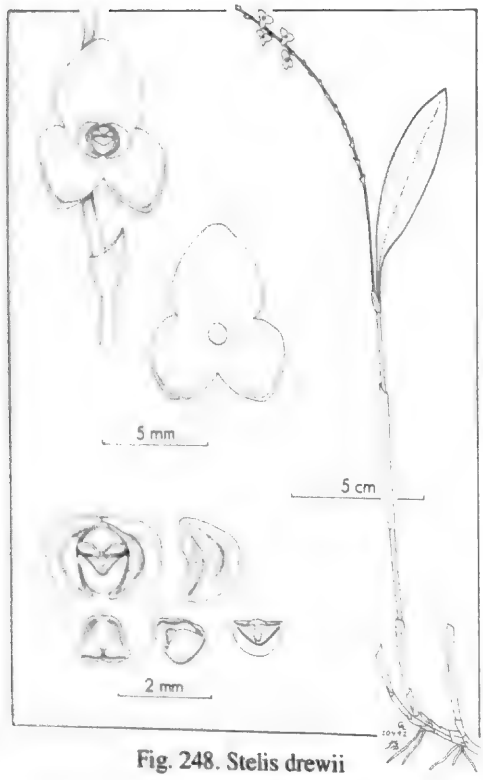


Fig. 248. Stelis drewii

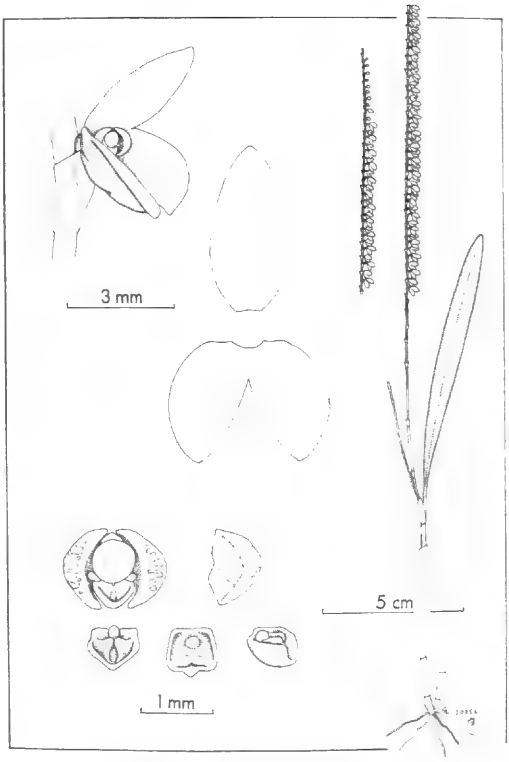


Fig. 249. Stelis elatissima

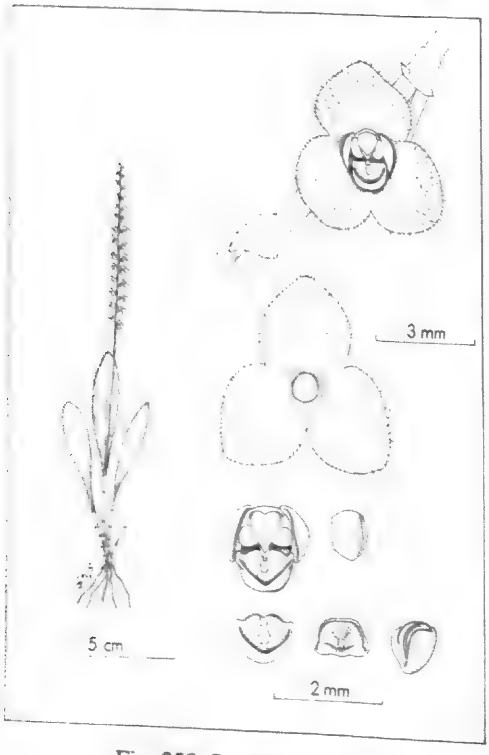


Fig. 250. Stelis entrichota

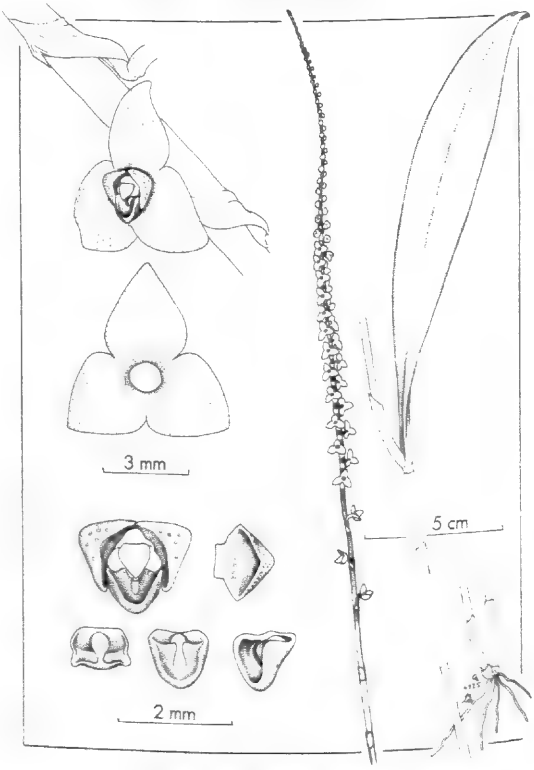


Fig. 251. Stelis eumeces

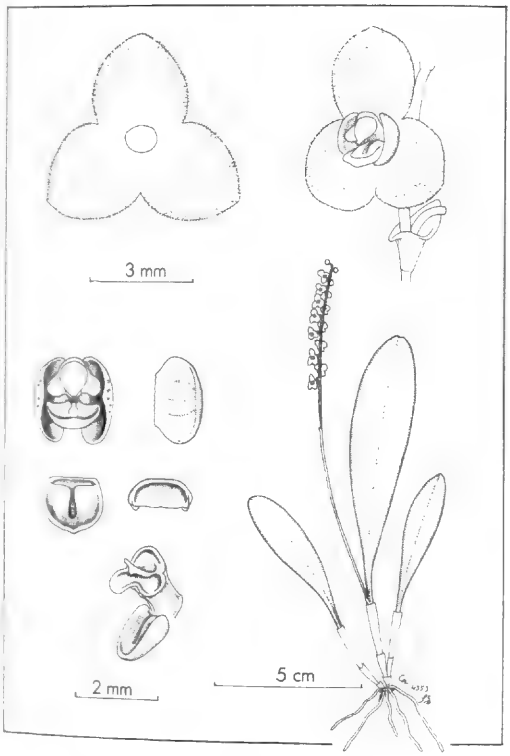


Fig. 252. Stelis eustylis

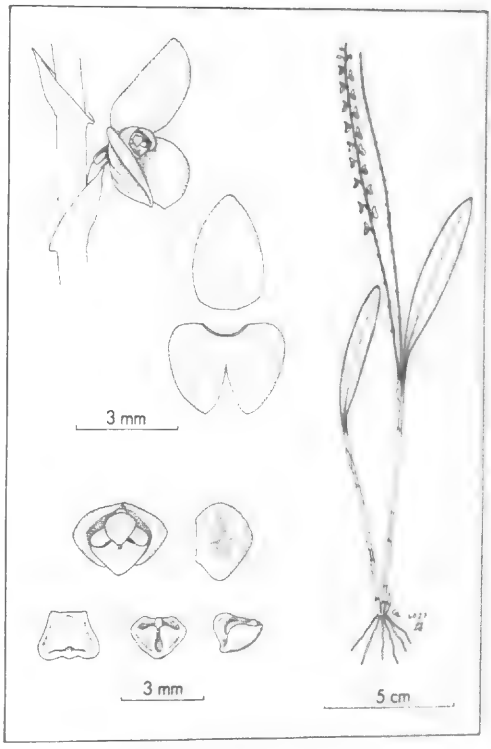


Fig. 253. Stelis graminosa

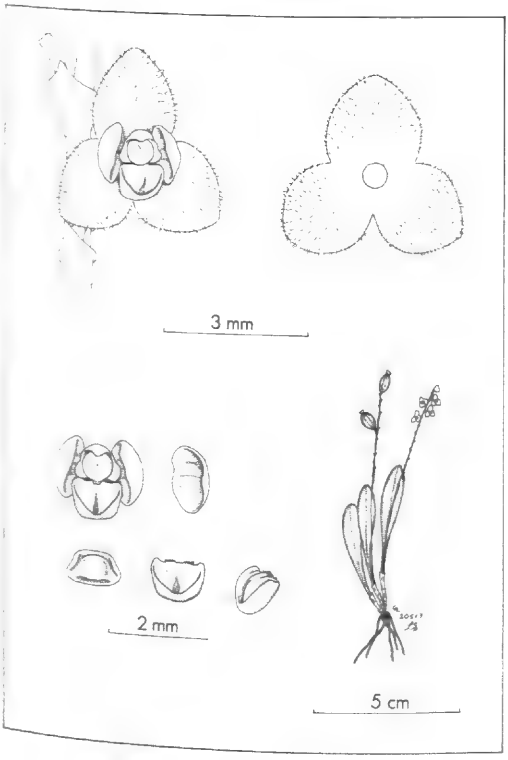


Fig. 254. Stelis hymenopetala

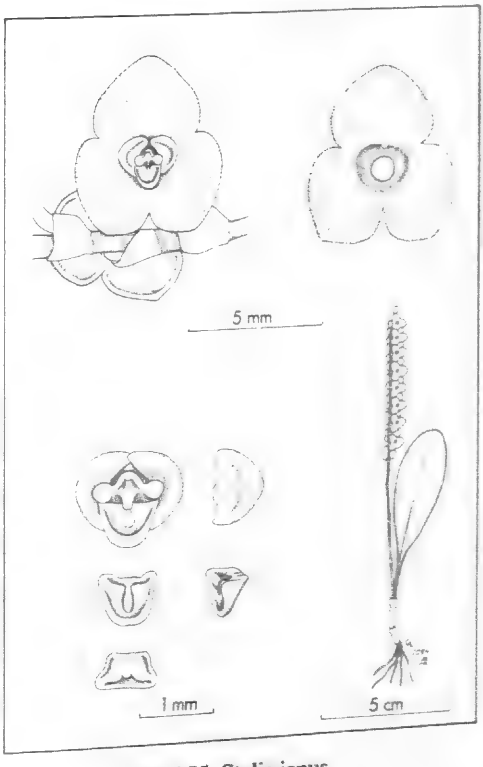


Fig. 255. Stelis janus

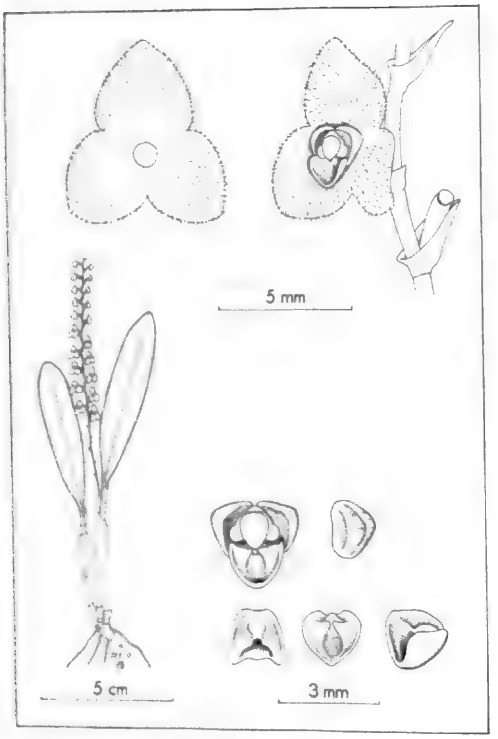


Fig. 256. Stelis lacunata

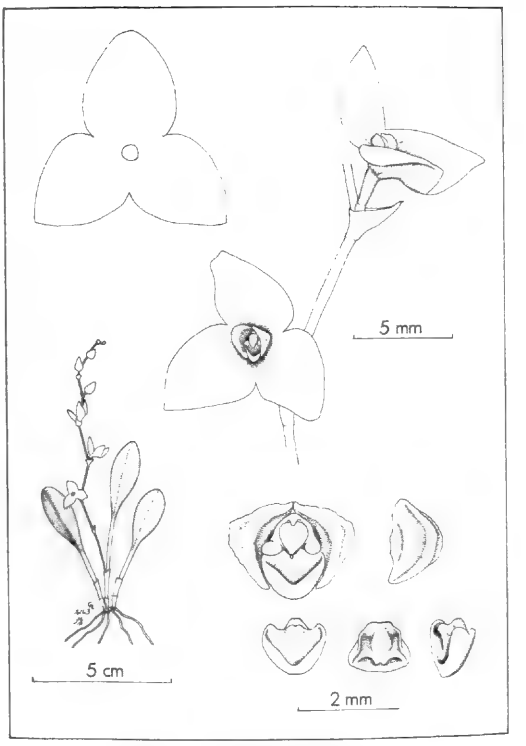


Fig. 257. Stelis lepidella

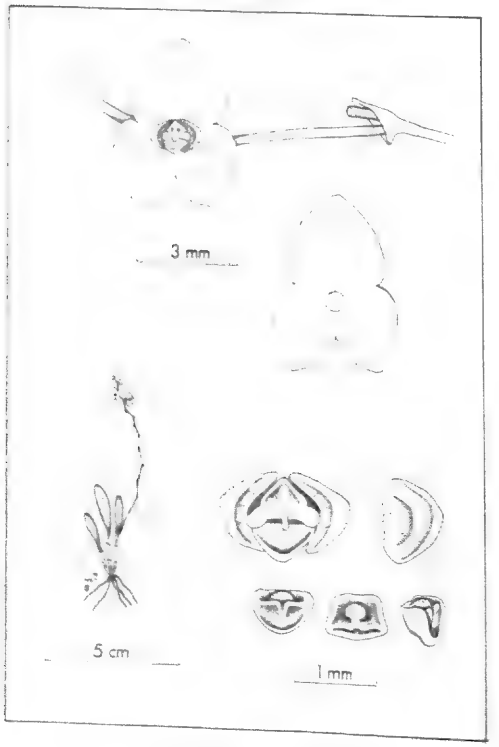


Fig. 258. Stelis levicula

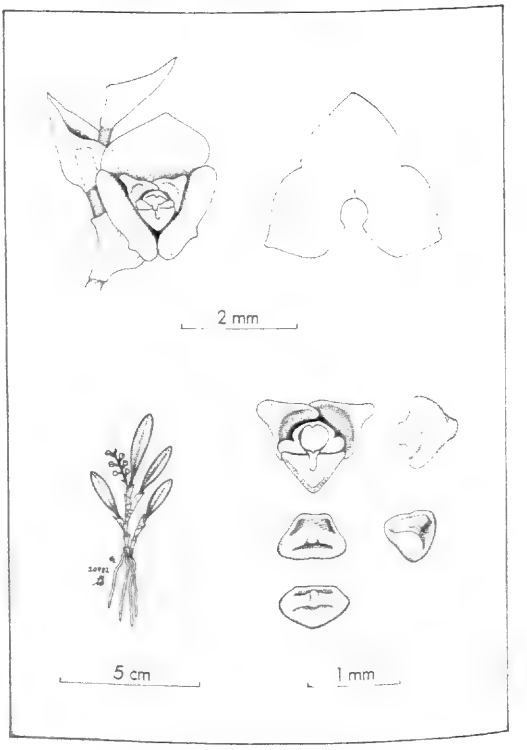


Fig. 259. Stelis lilliputana

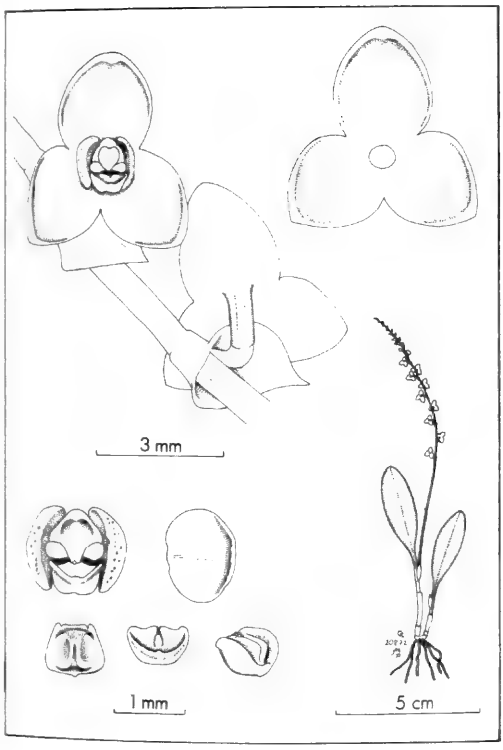


Fig. 260. Stelis limbata

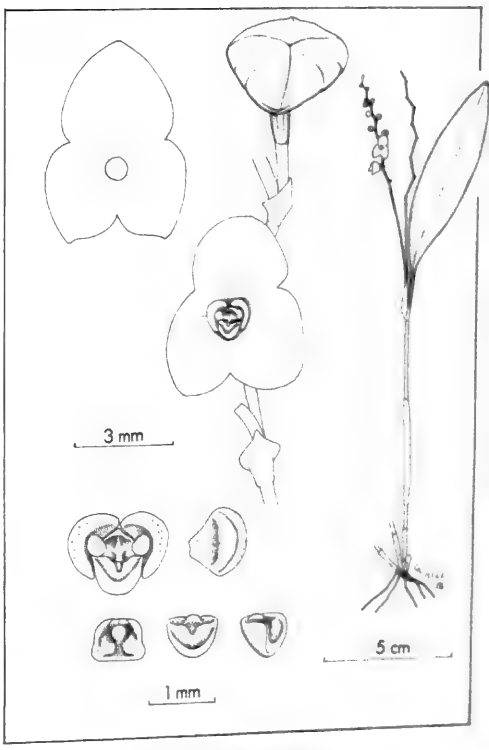


Fig. 261. Stelis litensis

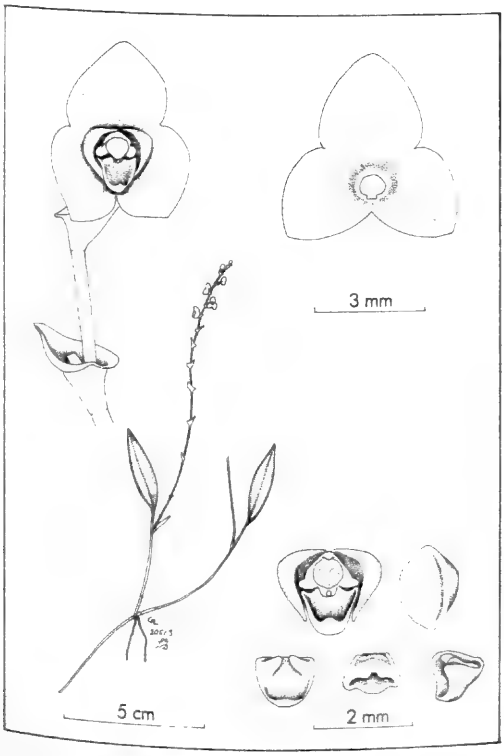


Fig. 262. Stelis lorenae

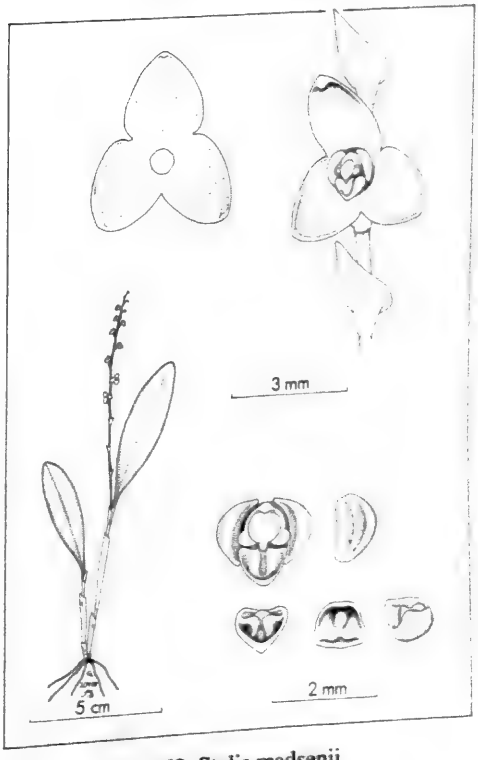


Fig. 263. Stelis madsenii

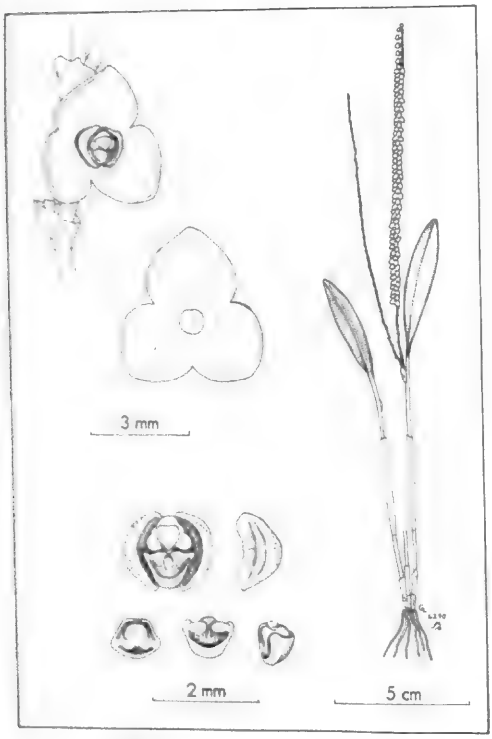


Fig. 264. Stelis mammillata

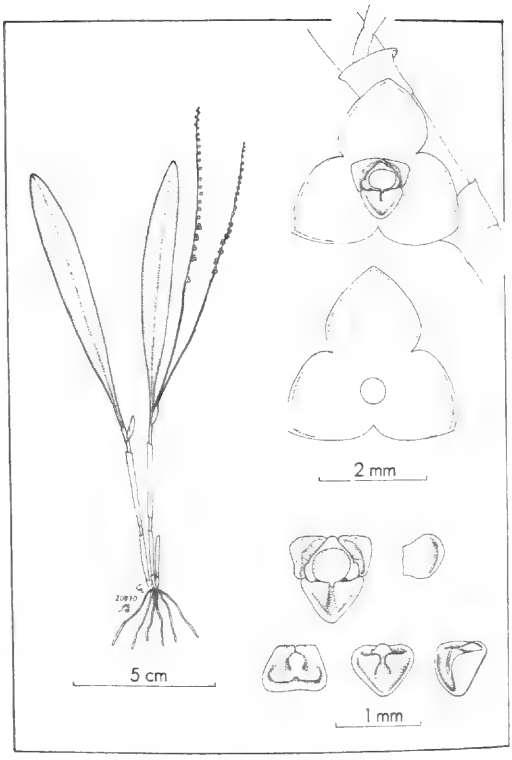


Fig. 265. Stelis micropetala

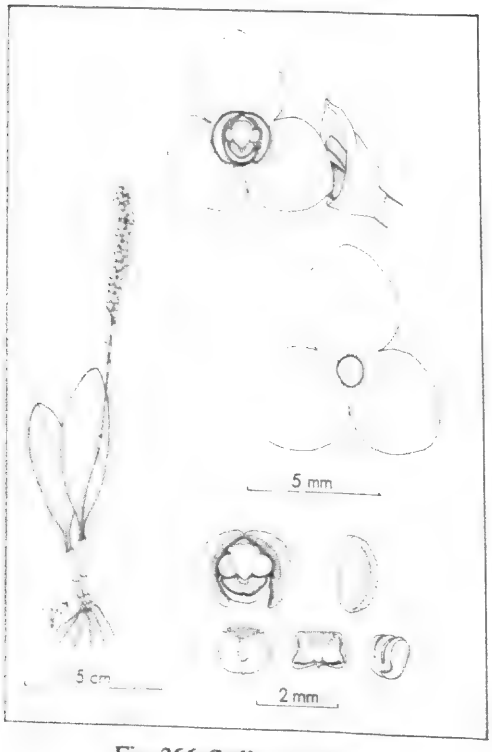


Fig. 266. Stelis milagrensis

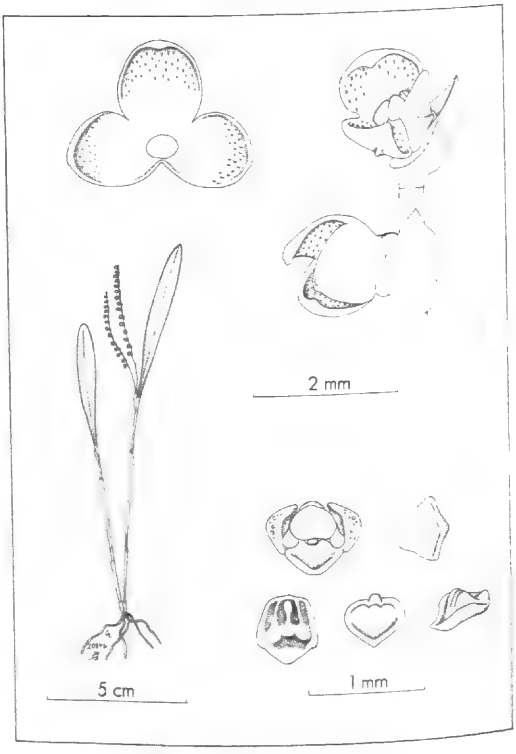


Fig. 267. Stelis misera

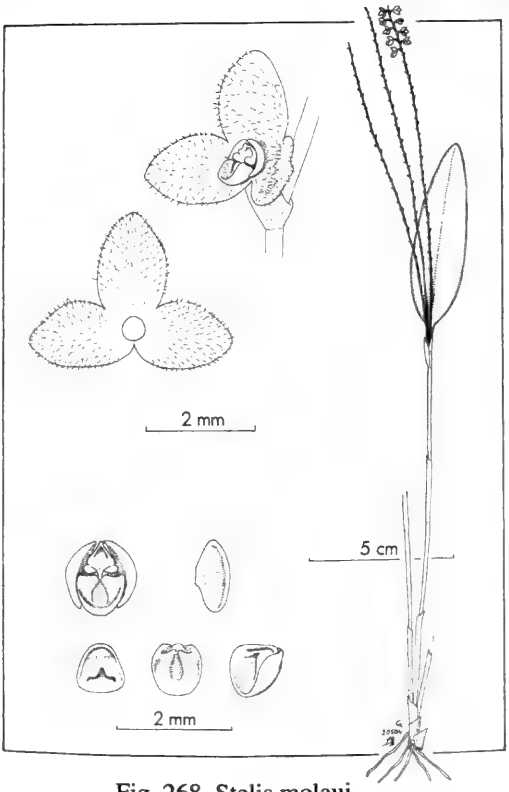


Fig. 268. Stelis molaui

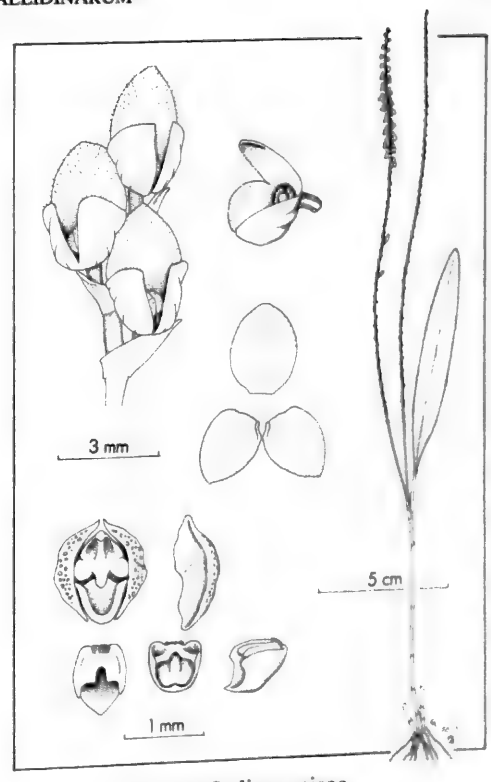


Fig. 269. Stelis monicae

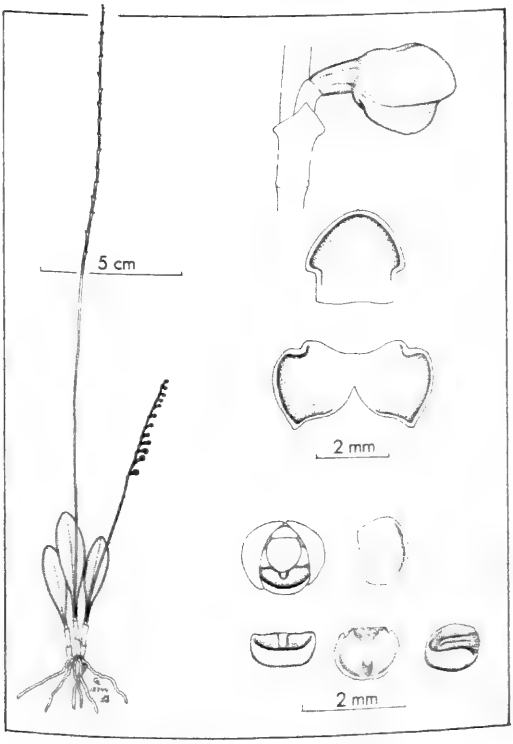


Fig. 270. Stelis moniligera

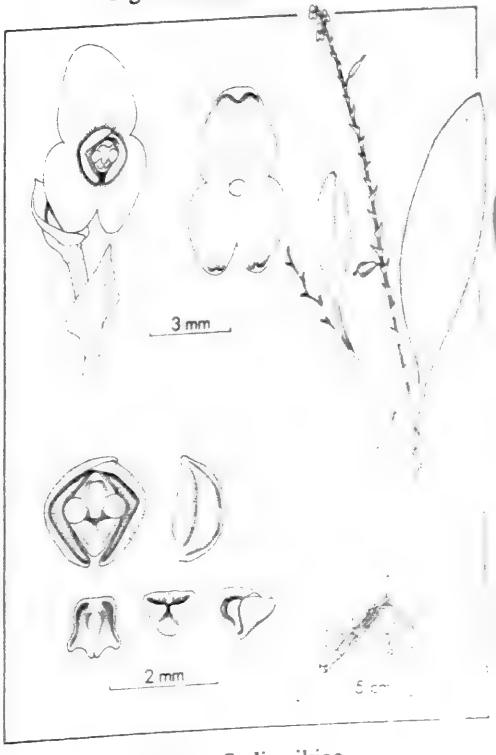


Fig. 271. Stelis nikiae

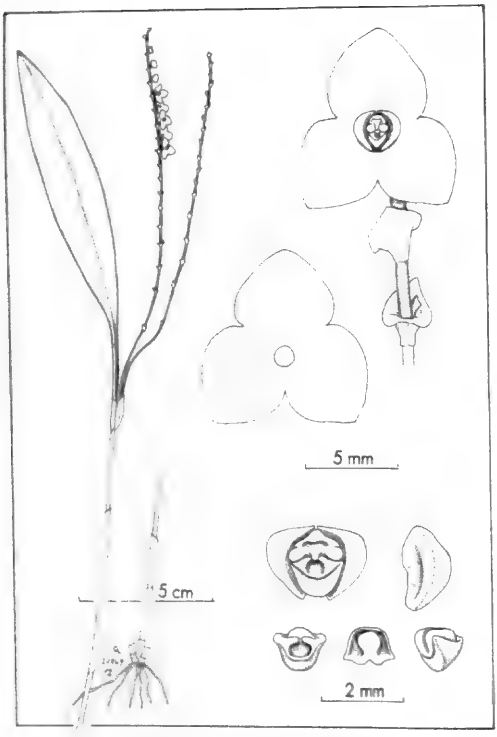


Fig. 272. Stelis ninguida

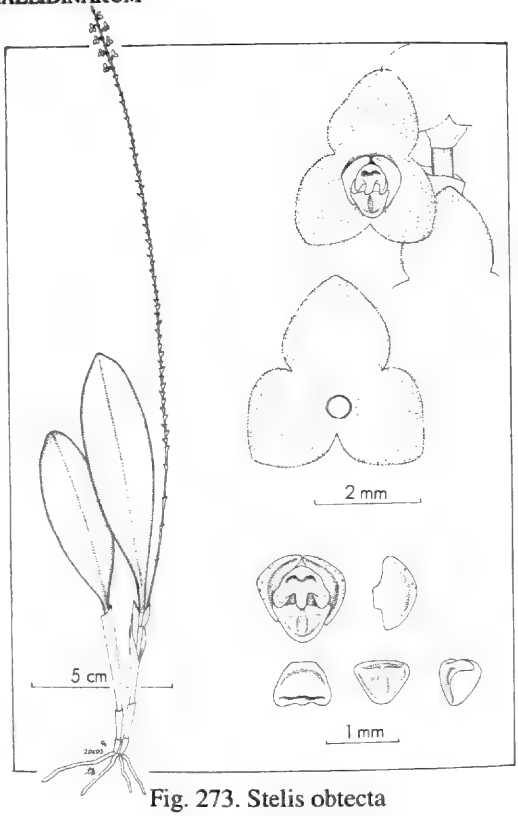


Fig. 273. Stelis obtecta

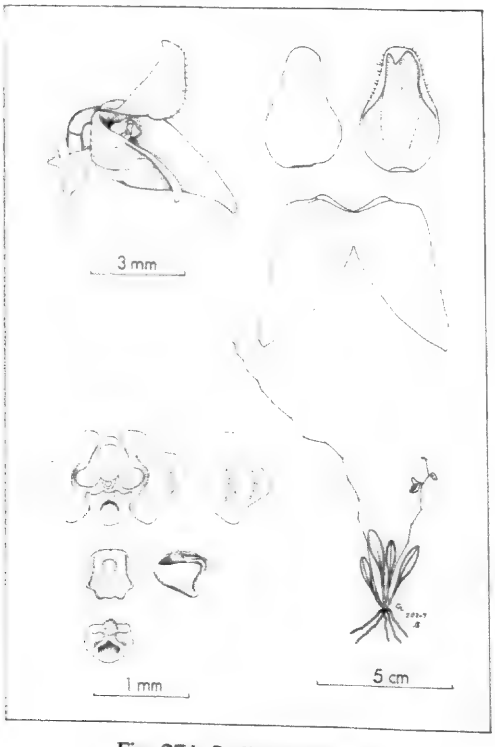


Fig. 274. Stelis ophioceps

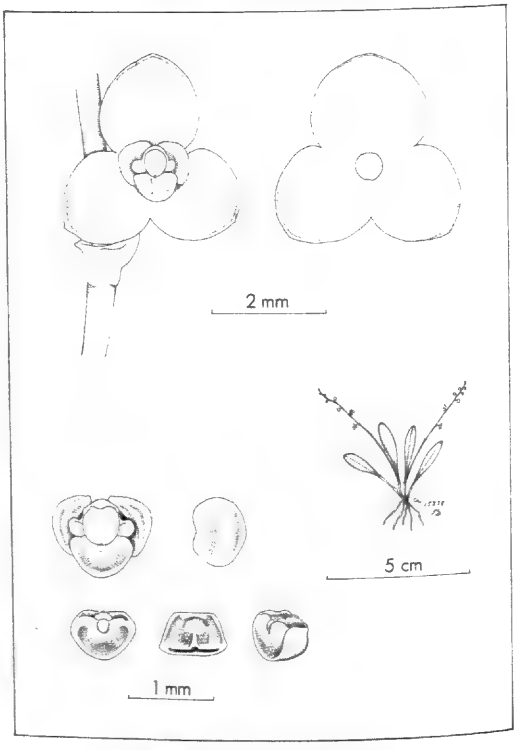


Fig. 275. Stelis orbiculata

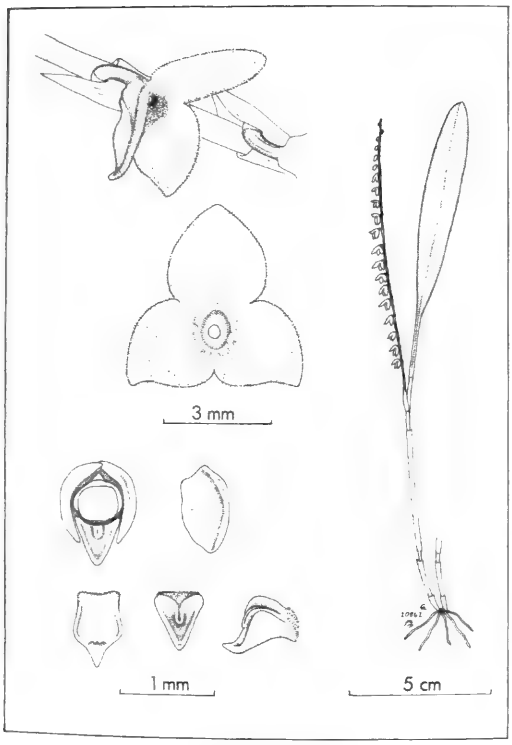


Fig. 276. Stelis panguiensis

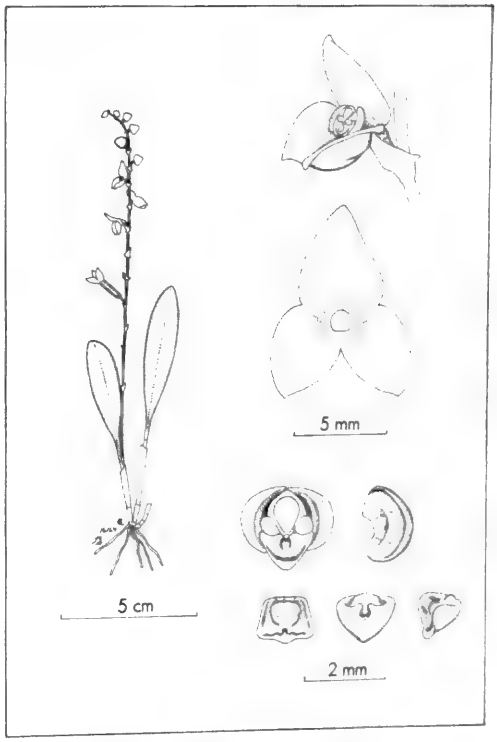


Fig. 277. Stelis paradisicola

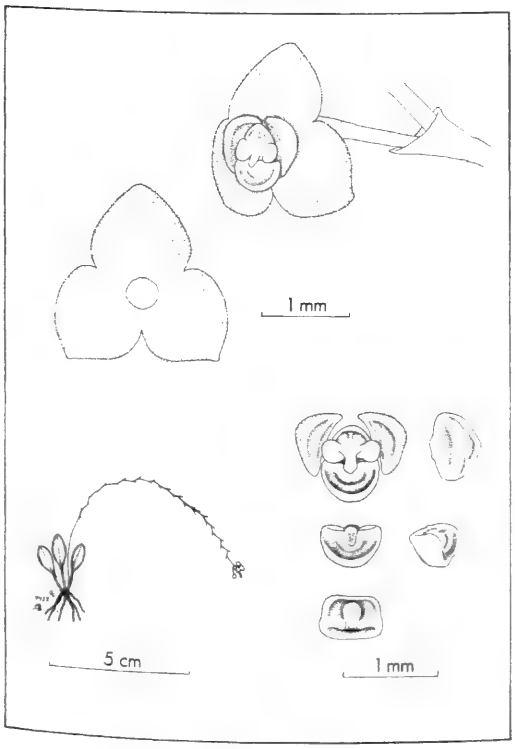


Fig. 278. Stelis paulula

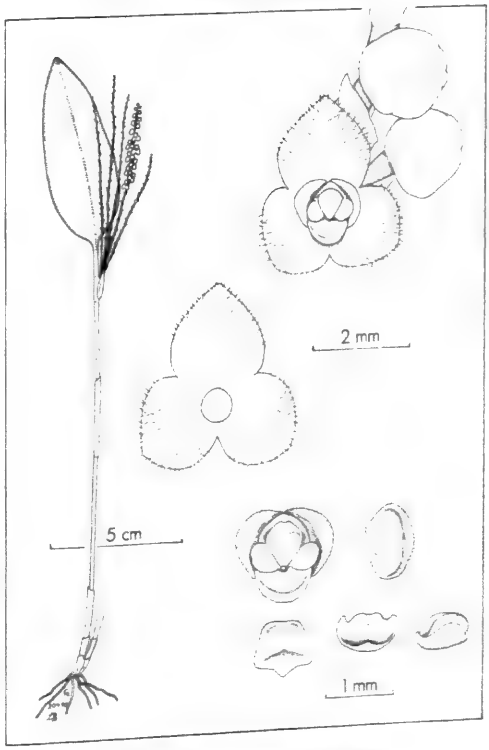


Fig. 279. Stelis pluriracemosa

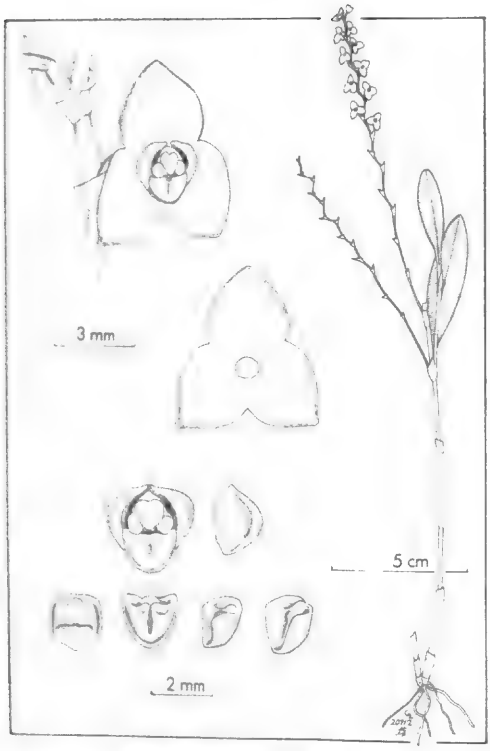


Fig. 280. Stelis prolifica

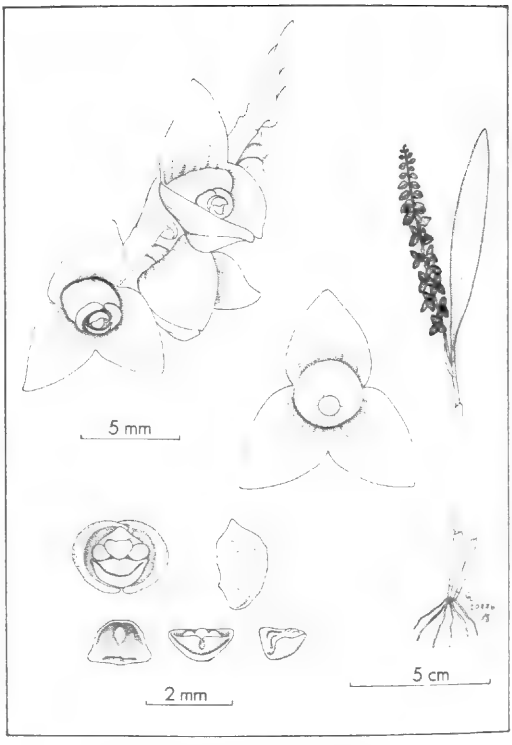


Fig. 281. Stelis protuberans

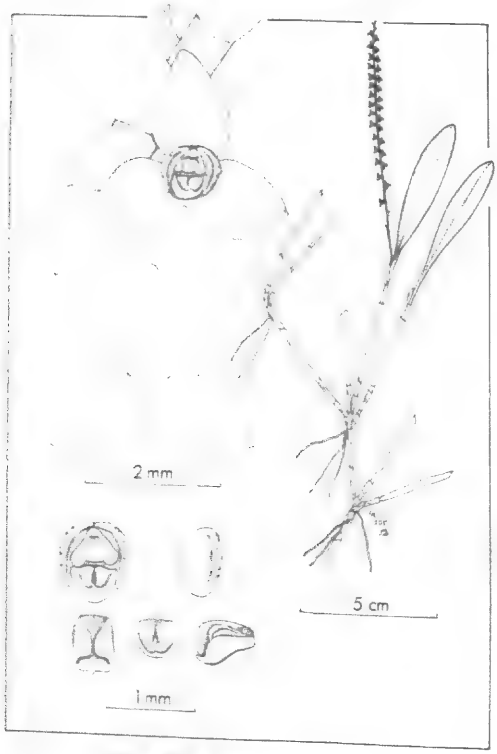


Fig. 282. Stelis ramificans

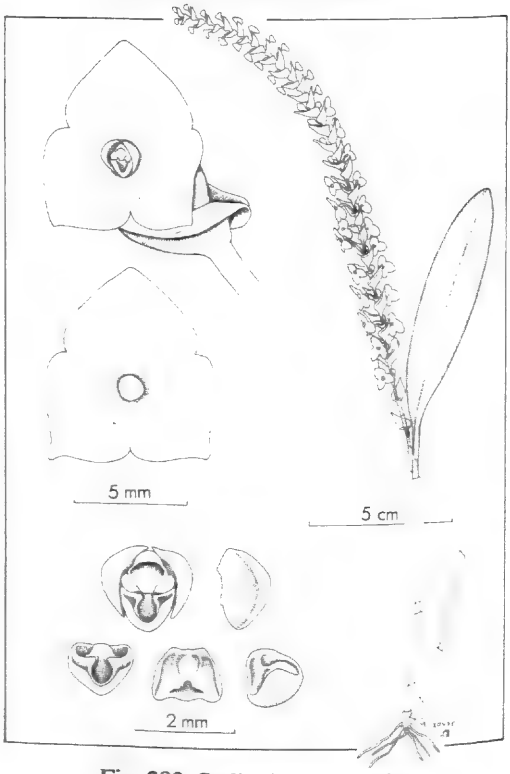


Fig. 283. Stelis riozunagensis

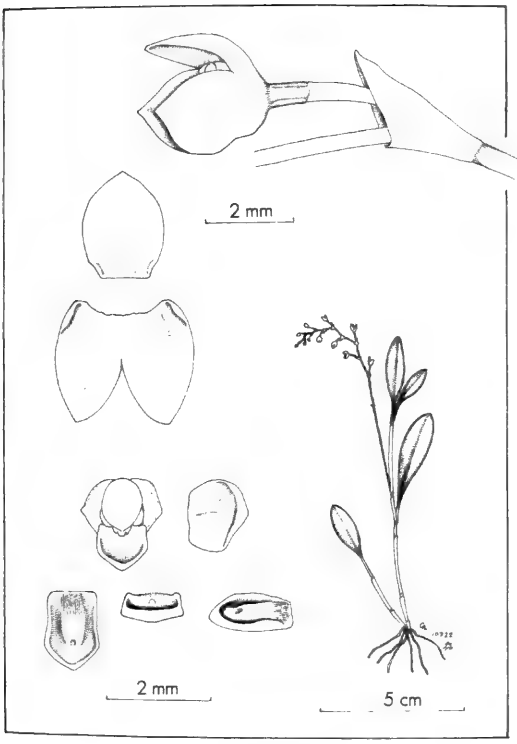


Fig. 284. Stelis satryica

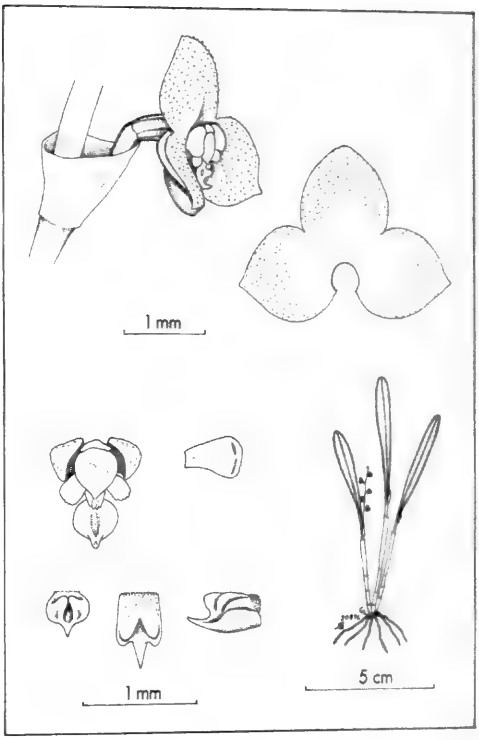


Fig. 285. Stelis scaberula

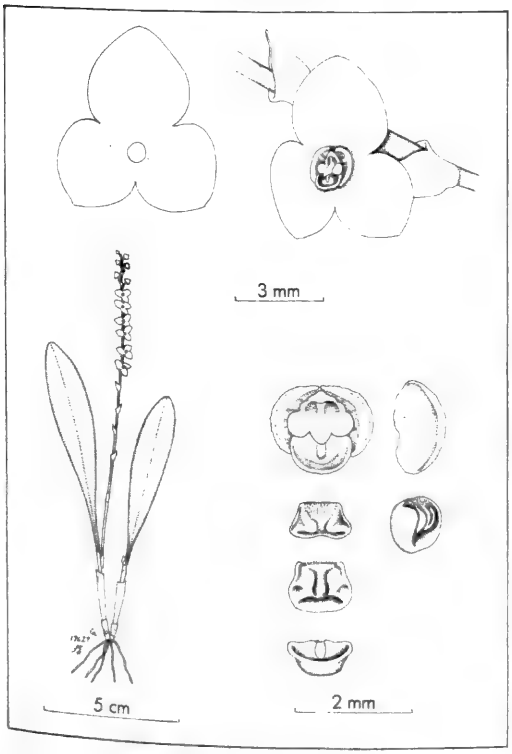


Fig. 286. Stelis scitula

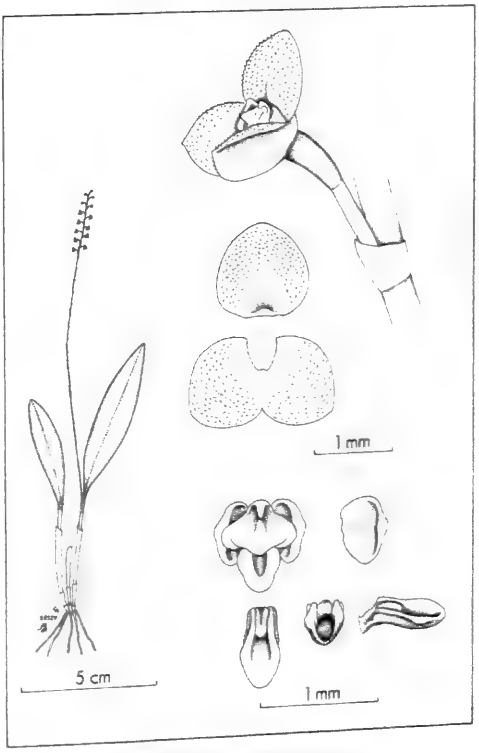


Fig. 287. Stelis septicola

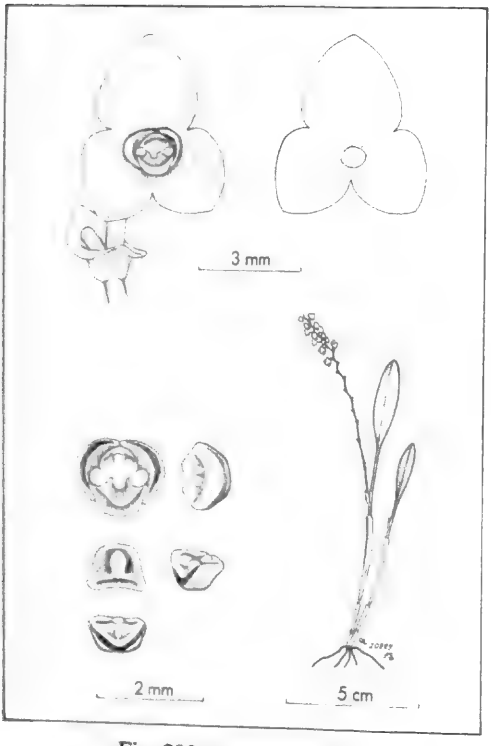


Fig. 288. Stelis similis

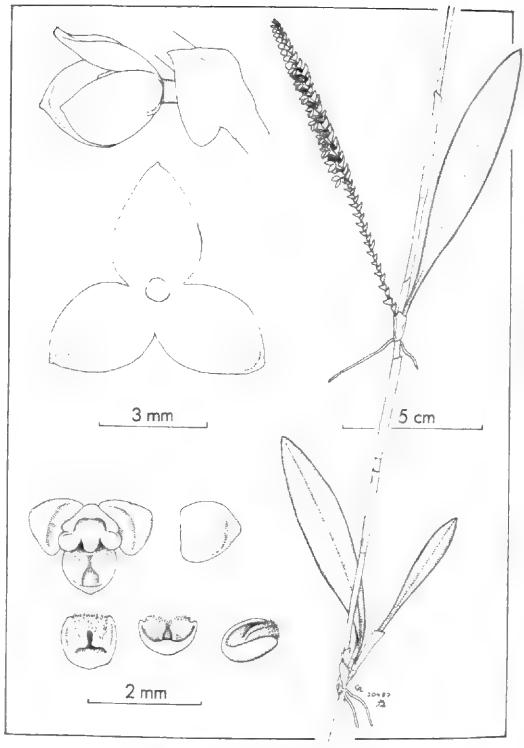


Fig. 289. Stelis soricina

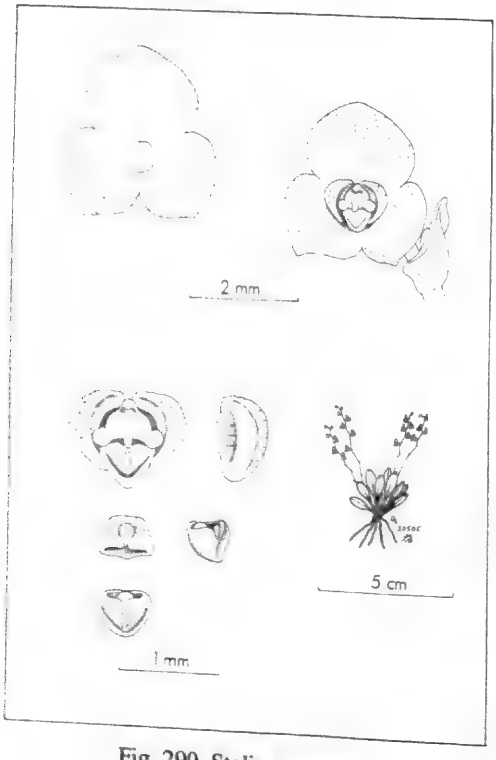


Fig. 290. Stelis sororcula

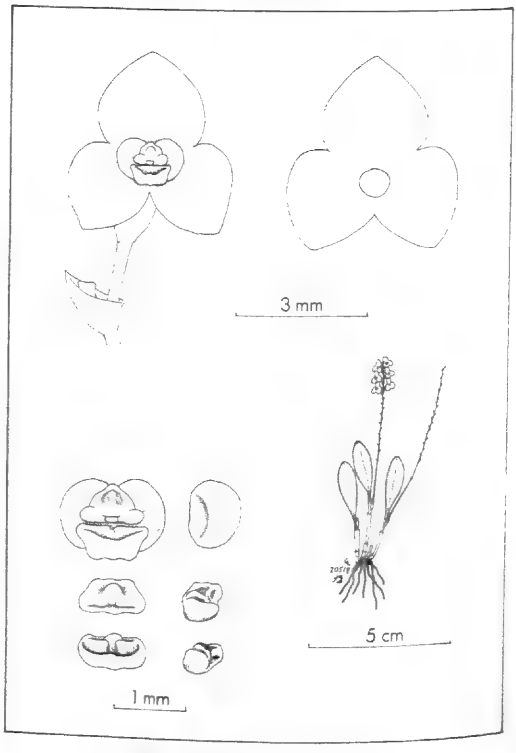


Fig. 291. Stelis stormii

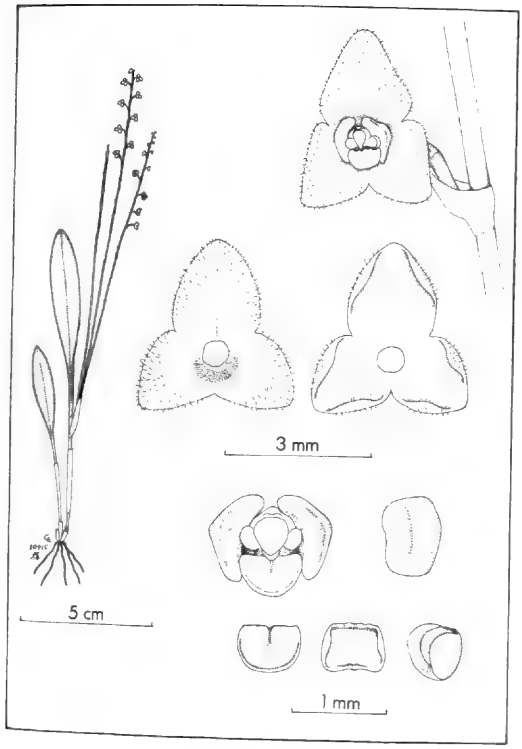


Fig. 292. Stelis strictissima

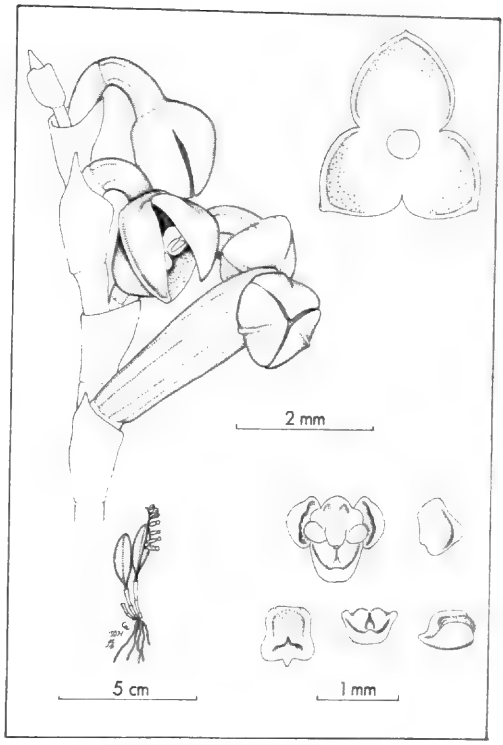


Fig. 293. Stelis supervivens

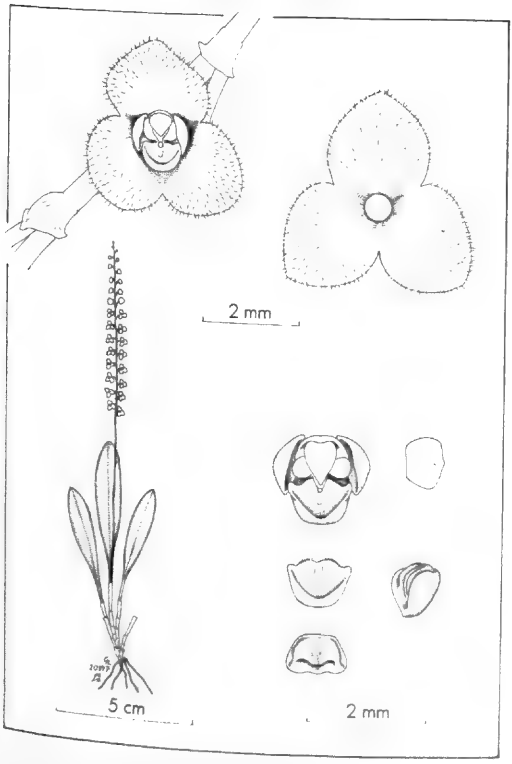


Fig. 294. Stelis tanythrix

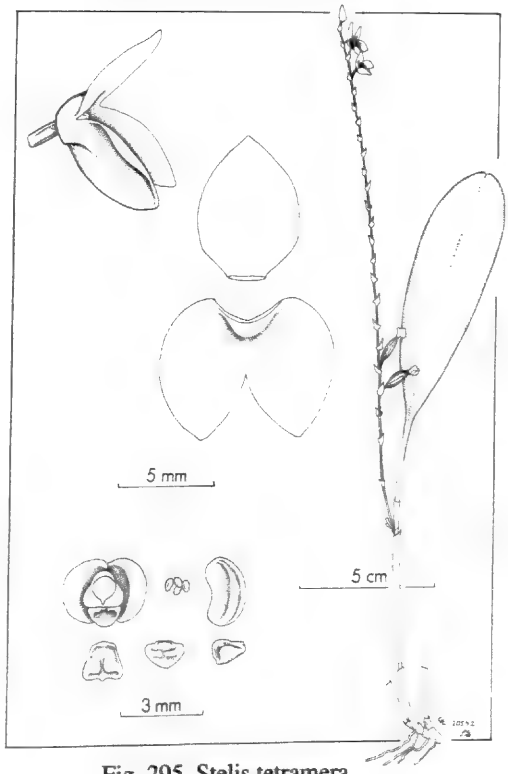


Fig. 295. Stelis tetramera

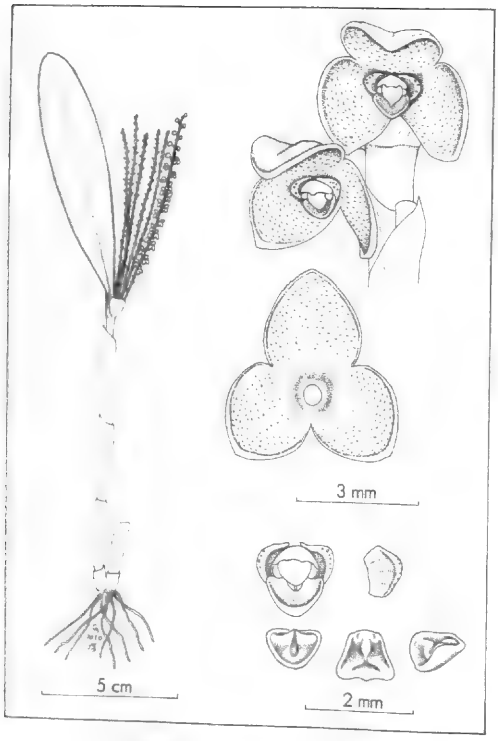
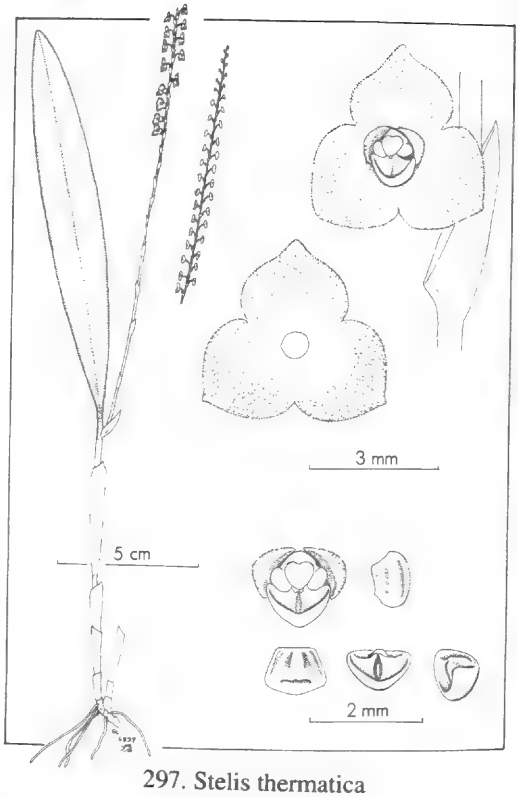


Fig. 296. Stelis thamiostachya



297. Stelis thermatica

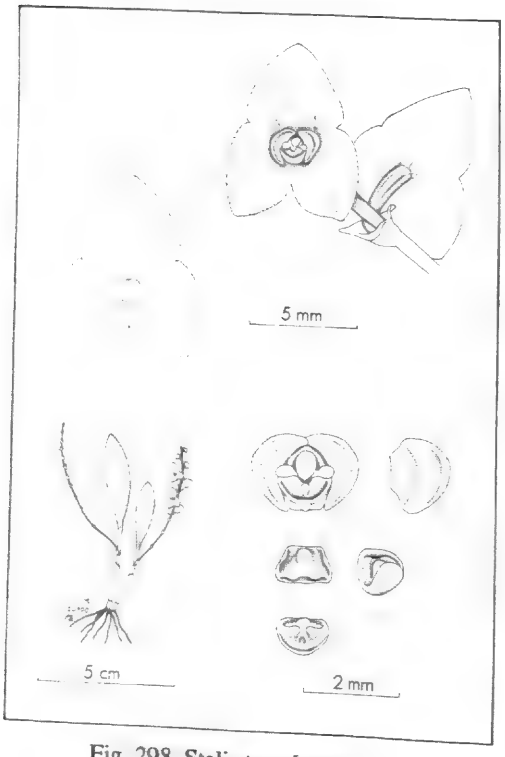


Fig. 298. Stelis translucens

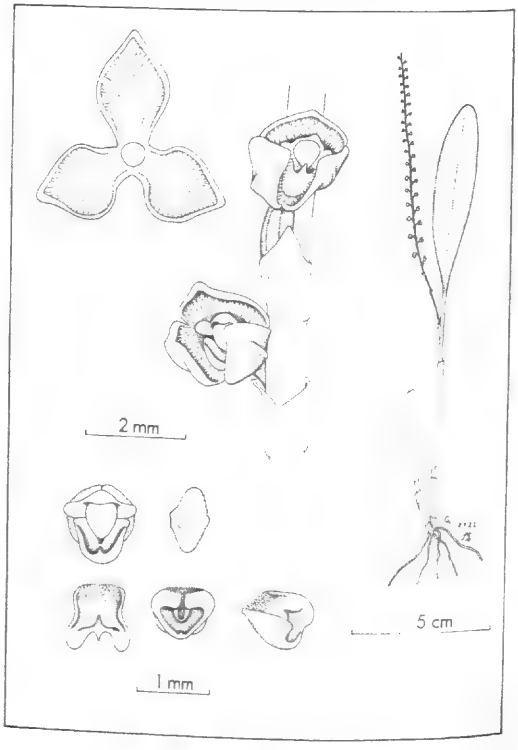


Fig. 299. Stelis trichoglottis

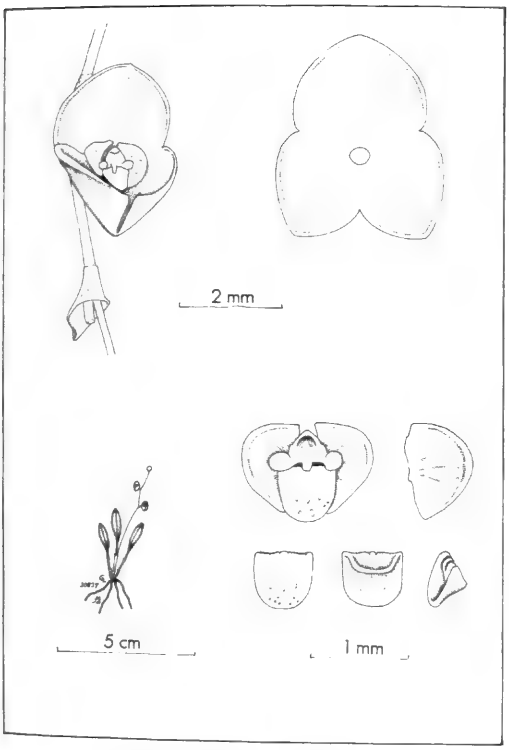


Fig. 300. Stelis tricula

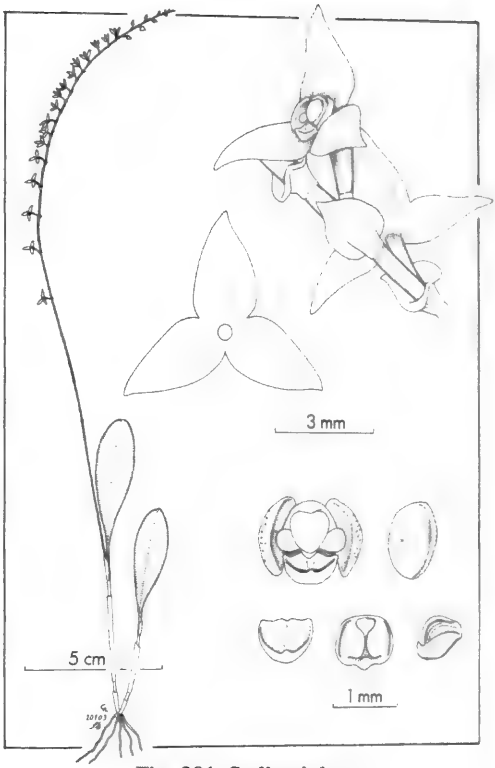


Fig. 301. Stelis triplex

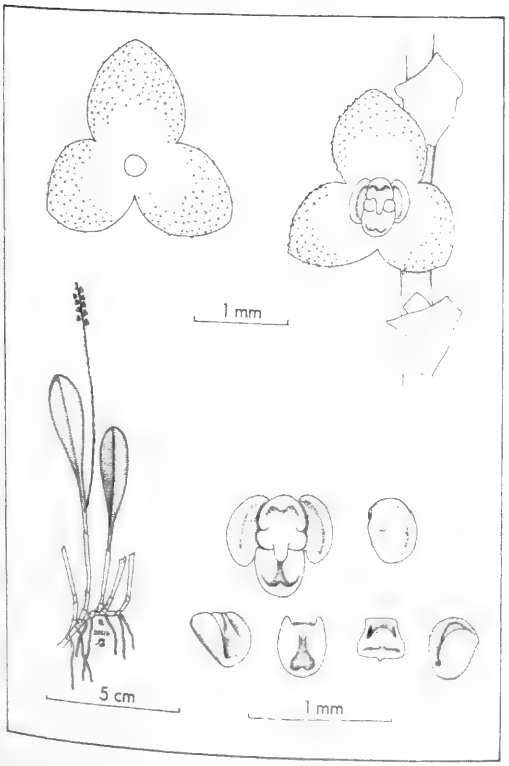


Fig. 302. Stelis tropex

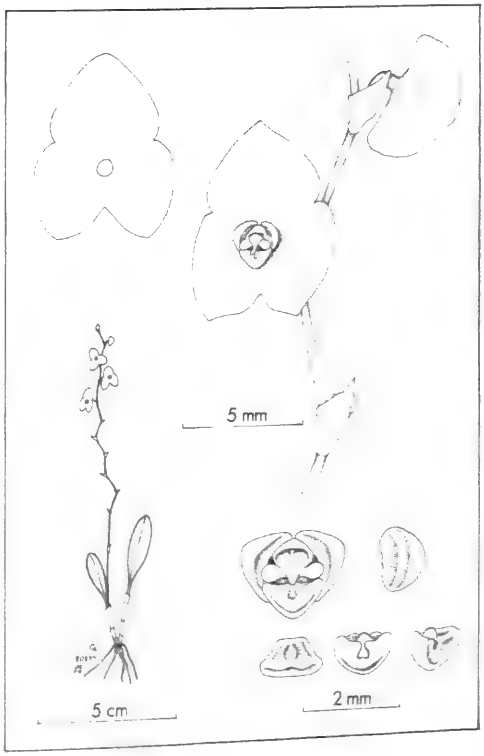


Fig. 303. Stelis umbonis

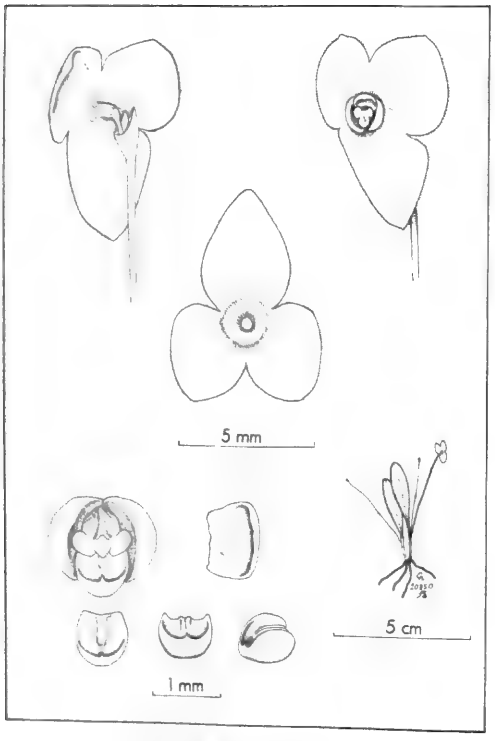


Fig. 304. Stelis uniflora

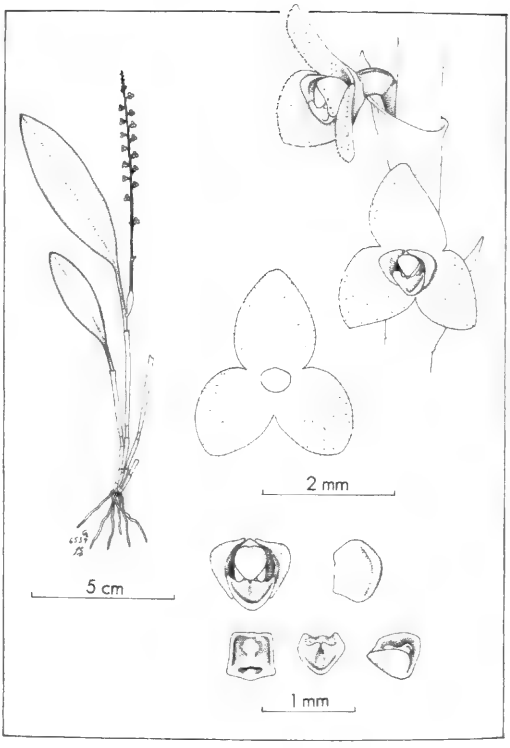


Fig. 305. Stelis wilhelmii

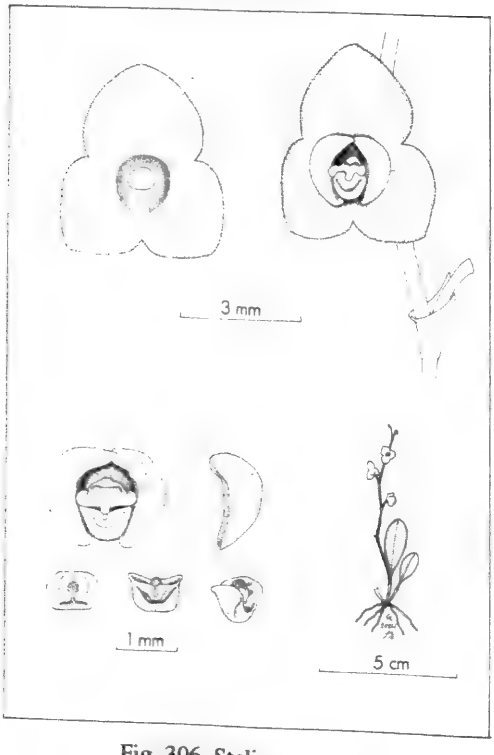


Fig. 306. Stelis zamorae

INDEX TO SCIENTIFIC NAMES

Sect. *Nexipous* 4
Sect. *Humboldtia* **10**, 23, 46, 57
Sect. *Stelis* **16**, 21
Crocodeilanthe floribunda 49
Stelis abbreviata 3, **16, Fig. 222.**
Stelis adinostachya 3, **16, Fig. 223.**
Stelis aliquantula 3, **17, Fig. 224.**
Stelis alpina 13
Stelis amabilis 3, **17, Fig. 225.**
Stelis anderssonii 3, **18, Fig. 226.**
Stelis ann-jesupiae 57
Stelis aperta 6
Stelis aphidifera 3, **18, Fig. 227.**
Stelis argentata 25, 52
Stelis asplundii 3, **19, Fig. 228.**
Stelis attenuata 31
Stelis atra 19
Stelis atrocaerulea 3, **19, Fig. 229.**
Stelis barbellata 1
Stelis barbicollis 20
Stelis barbimentosa 3, **20, Fig. 230.**
Stelis biserrula 27
Stelis brevissimicaudata 3, **20, Fig. 231.**
Stelis buccella 55
Stelis bucculenta 3, **10, Fig. 214.**
Stelis cajanumae 13
Stelis caerulea 19
Stelis carchica 3, **21, Fig. 232.**
Stelis cavernula 3, **21, Fig. 233.**
Stelis celsa 3, **22, Fig. 234.**
Stelis ciliatissima 1
Stelis coleata 3, **22, Fig. 235.**
Stelis columnaris 31
Stelis congesta 21
Stelis copiosa 3, **23, Fig. 236, 236a.**
Stelis coracina 3, **23, Fig. 237.**
Stelis corniculata 1
Stelis creodantha 3, **24, Fig. 238.**, 32
Stelis crinita 3, **24, Fig. 239.**
Stelis crossota 3, **25, Fig. 240.**
Stelis cryophila 3, **25, Fig. 241.**
Stelis cryptopetala 3, **26, Fig. 242.**
Stelis cutucuensis 50
Stelis declivis 47, 49
Stelis delicata 3, **26, Fig. 243.**
Stelis dimidiata 3, **27, Fig. 244.**
Stelis discolor 20
Stelis dissimulans 3, **27, Fig. 245.**
Stelis diversifolia 3, **28, Fig. 246, 246a.**
Stelis dolichantha 3, **28, Fig. 247.**
Stelis drewii 3, **29, Fig. 248.**
Stelis elatissima 3, **29, Fig. 249.**
Stelis elongatissima 29
Stelis encephalota 3, **4, Fig. 206.**
Stelis entrichota 3, **30, Fig. 250.**
Stelis eumeces 3, **30, Fig. 251.**
Stelis eustylis 3, **31, Fig. 252.**
Stelis fabulosa 5
Stelis fissa 18
Stelis flexuosissima 30
Stelis floribunda 53
Stelis glossula 10
Stelis glossulicles 3, **10, Fig. 215.**
Stelis graminosa 3, 24, **31, Fig. 253.**, 32
Stelis hymenantha 48
Stelis hymenopetala 3, **32, Fig. 254.**
Stelis inflata 3,**11, Fig. 216.**
Stelis intonsa 20
Stelis jamesonii 38
Stelis janus 3, **32, Fig. 255.**
Stelis juncea 26
Stelis juninensis 4, 7
Stelis lacunata 3, **33, Fig. 256.**, 37
Stelis lanata 21, 40, 55
Stelis lapoi 3, **11, Fig. 217.**
Stelis laudabilis 3, **4, Fig. 207.**
Stelis lepidella 3, **33, Fig. 257.**
Stelis levicula 3, **34, Fig. 258.**
Stelis lilliputana 3, **34, Fig. 259.**
Stelis limbata 3, **35, Fig. 260.**
Stelis lindenii 22, 42
Stelis listrophylla 1
Stelis litensis 3, **35, Fig. 261.**
Stelis longissima 29
Stelis lorenae 3, **36, Fig. 262.**
Stelis lynniana 3, **5, Fig. 208.**
Stelis madsenii 3, 33, **36, Fig. 263.**
Stelis mammillata 3, **37, Fig. 264.**
Stelis micropetala 3, **37, Fig. 265.**, 38
Stelis milagrensis 3, **38, Fig. 266.**
Stelis millenaria 45
Stelis minimiflora 38
Stelis misera 3, **38, Fig. 267.**
Stelis mnemonica 3, **5, Fig. 209.**
Stelis molaui 3, **39, Fig. 268.**
Stelis monicae 3, **39, Fig. 269.**
Stelis moniligera 3, **40, Fig. 270.**
Stelis mononeura 39
Stelis multiflora 30
Stelis nambijae 1
Stelis neudeckeri 11
Stelis nigrescens 3, **12, Fig. 218.**
Stelis nikiae 3, **40, Fig. 271.**
Stelis ninguida 3, **41, Fig. 272.**
Stelis nycterina 1
Stelis obtecta 3, **41, Fig. 273.**

Stelis ophioceps 3, **42, Fig. 274.**
Stelis orbiculata 3, **42, Fig. 275.**
Stelis orecta 3, **6, Fig. 210.**
Stelis pactensis 3, **6, Fig. 211.**
Stelis panguiensis 3, **43, Fig. 276.**
Stelis paradisicola 3, **43, Fig. 277.**
Stelis paulula 3, **44, Fig. 278.**
Stelis pelycophora 3, **12, Fig. 219.**
Stelis picea 3, 5, 6, **7, Fig. 212.**
Stelis pluriracemosa 3, **44, Fig. 279.**
Stelis prolificosa 3, **45, Fig. 280.**
Stelis protuberans 3, **45, Fig. 281.**
Stelis pudens 47
Stelis pusilla 19
Stelis ramificans 3, **46, Fig. 282.**
Stelis reniformis 1
Stelis riozunagensis 3, **46, Fig. 283.**
Stelis satryica 3, **47, Fig. 284.**
Stelis scaberula 3, **47, Fig. 285.**, 48
Stelis scaphoglottis 1
Stelis scitula 3, **48, Fig. 286.**, 49
Stelis semperflorens 44
Stelis septicola 3, **48, Fig. 287.**
Stelis simacoensis 8
Stelis similis 3, **49, Fig. 288.**
Stelis soricina 3, **49, Fig. 289.**
Stelis sororcula 3, **50, Fig. 290.**
Stelis sparsiflora 3, **13, Fig. 220.**
Stelis spathulata 48
Stelis stormii 3, 49, **50, Fig. 291.**
Stelis striolata 41
Stelis strobilacea 3, **13, Fig. 221.**
Stelis strictissima 3, **51, Fig. 292.**
Stelis supervivens 3, **51, Fig. 293.**
Stelis tanythrix 3, **52, Fig. 294.**
Stelis tetramera 3, **52, Fig. 295.**
Stelis thamiostachya 3, **53, Fig. 296.**
Stelis thermatica 3, **53, Fig. 287.**
Stelis translucens 3, **54, Fig. 298.**
Stelis trichoglottis 3, **54, Fig. 299.**, 55
Stelis tricula 3, **55, Fig. 300.**
Stelis tridactylon 5
Stelis tridentata 58
Stelis triplex 3, **55, Fig. 301.**
Stelis tropex 3, **56, Fig. 302.**
Stelis umbonis 3, **56, Fig. 303.**
Stelis uncifera 3, **7, Fig. 213.**
Stelis uniflora 3, **57, Fig. 304.**
Stelis viamontis 49
Stelis viridibrunnea 48
Stelis wilhelmii 3, **57, Fig. 305.**, 58
Stelis zamorae 3, **58, Fig. 306.**

ACKNOWLEDGMENTS

As with the preceding 200 new species of *Stelis* of Ecuador, most of these 100 new species were also collected by Alex Hirtz of Quito, Ecuador. Collections by other persons are noted. Also as with the preceding, all illustrations were inked by Stig Dalström. For their hours of proofreading, I thank Victoria Hollowell, Mary Jane Hotaling, and Lisa Thoerle.

REFERENCES

LUER, C.A., 2002. A first century of new species of *Stelis* of Ecuador, part oneIcones Pleurothallidinarum XXIV. Monogr. Syst. Bot. Missouri Bot. Gard. 88: 1-86.

---------- 2004. A second century of new species of *Stelis* of Ecuafor, part two. Icones Pleurothallidinarum XXVI. Monogr. Syst. Bot. Missouri Bot. Gard. 95: 115-200.

PRIDGEON, A.M. & M.W. CHASE, 2001. A phylogenetic reclassification of Pleurothallidinae. Lindleyana 16(4): 235-271.

---------- 2002. Nomenclatural notes on Pleurothallidinae. Lindleyana 17(2): 98-101.

SCHLECHTER, R., 1921. Die Orchideenflora der südamerikanischen kordilleren staaten III. Ecuador. Repert. spec. nov. regni veg. Beih. 8: 121-125.

SYSTEMATICS OF *APODA-PROREPENTIA* (ORCHIDACEAE)

ABSTRACT

A brief history of *Apoda-Prorepentia* (Luer) Luer is given with a key to the species, and the species are described.

Lindley proposed this taxon in 1859 for ten pleurothallid species with creeping rhizomes, and with short ramicauls that he simply called "stems." *Pleurothallis testifolia* Sw. was chosen for the lectotype when the taxon was proposed as a subgenus (Luer, 1986). The other nine species proved to be unrelated, and have been dispersed into other taxa, such as *Barbosella* Schltr. Except for *Apoda-Prorepentia testifolia* (Sw.) Luer, the eight species that now constitute the genus have been subsequently described.

Apoda-Prorepentia (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 255, 2004.

Replaced syn.: *Pleurothallis* sect. *Apodae-Prorepentes* Lindl., Folia Orch. *Pleurothallis*. 42, 1859.

Lectotype: *Epidendrum testaefolium* Sw. [=*Apoda-Prorepentia testifolia* (Sw.) Luer].

Ety.: From the Greek *apodion*, "footless," and the Latin *prorepens*, "creeping," referring to the creeping, short-stemmed habit.

Syn.: *Pleurothallis* subgen. *Apoda-Prorepentia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 31, 1986.

Plants small to medium in size, epiphytic, repent or pendent, the rhizome stout, enclosed by tubular sheaths; roots slender. Ramicauls stout, short, enclosed by inflated sheaths. **Leaf** suberect, prostrate to pendent, often overlapping, coriaceous, elliptical, acute to obtuse, the base cuneate into the sessile base. **Inflorescence** a single, or a successive flower borne in a very short, congested raceme from the apex of the ramicaul at the base of the leaf, often within an inflated spathe, the peduncle short within the spathe and with a filament (the vestigial bud of the aborted successive flower); **sepals** fleshy, glabrous to pubescent, variously connate, often hidden within the spathe; **petals** membranous, entire to minutely denticulate; **lip** oblong, entire or lobed, the base often with basal lobules, hinged to the tip of the column-foot; **column** semiterete, the foot well-developed, the anther with two pollinia, rostellum and stigma ventral.

This genus is remarkable for the repent, often pendent habit with a large, foliaceous spathe at the base of the leaf that conceals much of the inflorescence, but the spathe is insignificant in other species. The broad, short-stemmed leaves often overlap. The inflorescence arises terminally, and produces a single flower, or a single flower successively. Although similar by virtue of the habit, the floral parts of the species have evolved down separate paths.

The pedicel is abbreviated, and with a filament, the aborted next flower. The sepals are fleshy and pubescent externally in five of the eight species. They are variously connate from above the middle to below the middle. In none do the sepals spread widely. The petals are single-veined, often more or less spathulate and unguiculate. Two species possess a minute callus on the claw [*Apoda-Prorepentia melanochthoda* (Luer & Hirtz) Luer and *A. testifolia* (Sw.) Luer]. The apex of the lip is smooth in one species [*A. kateora* (Garay) Luer] and variously denticulate to fringed in the others. Below the middle, the lip is vaguely to obviously unguiculate with lateral lobes that vary from a broad, obtuse angle, to a narrow, acute process in one species (*A. kateora*). The column is elongate and narrowly winged except in one with denticulate wings (*A. testifolia*). The anther is hooded and bears a pair of ovoid pollinia attached to a minute viscidium.

BINOMIALS ATTRIBUTABLE *APODA-PROREPENTIA*

Apoda-Prorepentia calypso (Luer) Luer.....Fig. 1.
A. dodsonii (Luer) Luer.....Fig. 2.
A. hystrix (Kraenzl.) Luer.....Fig. 3.
A. karlii (Pabst) Luer.....Fig. 4.
A. kateora (Garay) Luer.....Fig. 5.
A. melanochthoda (Luer & Hirtz) Luer.....Fig. 6.
A. portilloi (Luer & R.Escobar) Luer.....Fig. 7.
A. testifolia (Sw.) Luer.....Fig. 8.

Cryptophoranthus hoehnei Schltr. = **A. hystrix**
Cryptophoranthus hystrix (Kraenzl.) Garay = **A. hystrix**
Cryptophoranthus pectinatus Schltr. = **A. testifolia**
Cryptophoranthus sarcophyllus (Rchb.f.) Schltr. = **A. testifolia**
Phloeophila hystrix (Kraenzl.) Garay = **A. hystrix**
Physosiphon hystrix Kraenzl. = **A. hystrix**
Physothallis kateora Garay = **A. kateora**
Pleurothallis calypso Luer = **A. calypso**
Pleurothallis dodsonii Luer = **A. dodsonii**
Pleurothallis helleriana L.O.Williams = **A. testifolia**
Pleurothallis karlii Pabst = **A. karlii**
Pleurothallis kateora (Garay) Luer = **A. kateora**
Pleurothallis melanochthoda Luer & Hirtz = **A. melanochthoda**
Pleurothallis portilloi Luer & R.Escobar = **A. portilloi**
Pleurothallis raduliglossa Pabst = **A. hystrix**
Pleurothallis sarcophylla Rchb.f. = **A. testifolia**
Pleurothallis testifolia (Sw.) Lindl. = **A. testifolia**

KEY TO THE SPECIES

1 Leaf covered with small, black warts.....*A. melanochthoda*
1' Leaf not covered with black warts.....2

2 Spathe 3-4 cm long.....*A. calypso*
2' Spathe less than 2 cm long.....3

3 Sepals pubescent externally.....4
3' Sepals glabrous externally.....6

4 Lip not densely spiculate.....*A. dodsonii*
4' Lip densely spiculate.....5

5 Sepals and ovary long-pubescent; petals obtuse.....*A. testifolia*
5' Sepals and ovary short-pubescent; petals acute.....*A. hystrix*

6 Lip with narrow, acute, hook-like, marginal lobes.....*A. kateora*
6' Lip with low, rounded, marginal lobes.....7

7 Lip unguiculate without a callus.....*A. portilloi*
7' Lip narrowly unguiculate with a callus.....*A. karlii*

Apoda-Prorepentia calypso (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 255, 2004.

Bas.: *Pleurothallis calypso* Luer, Phytologia 46: 358, 1980.

Ety.: Named for the mythological nymph Calypso who hid Ulysses, in allusion to the hidden flower.

Plant medium in size, epiphytic, repent, pendent, the rhizome stout, up to 40 cm long, 1-2.5 cm long between ramicauls, enclosed by 2 loose, oblique, compressed sheaths; roots slender. Ramicauls stout, 5-15 mm long, enclosed by 2 inflated, compressed sheaths. **Leaf** pendent, thinly coriaceous, elliptical, acute to subacute, 3-7 cm long, 1.5-2.5 cm wide, the base cuneate into the sessile base. **Inflorescence** a single flower borne within a large, inflated, foliaceous spathe, 2-4 cm long, 0.5-1.5 cm wide, at the base of the leaf, the peduncle less than 1 mm long; floral bract thin, 3-4 mm long; pedicel stout, 1-2 mm long with a filament about as long; ovary shortly pubescent, 1.5-2.5 mm long; **sepals** yellow or white, suffused with rose, fleshy, pubescent externally, the dorsal sepal triangular, acute, 7 mm long, 2.5 mm wide at the base, connate to the lateral sepals for 1.5 mm, the lateral sepals triangular-ovate, oblique, acute, 7 mm long, 2.5 mm wide, barely connate at the base; **petals** yellow or white, suffused with purple, glabrous, obovate, obtuse, 4-4.5 mm long, 1.5 mm wide; **lip** yellow, suffused with purple or brown, oblong-subtrilobed, 4 mm long, 1.5 mm wide unexpanded, 3 mm wide across the lower margins expanded, the margins fringed above the middle to the subacute apex, the margins erect and obtusely angled below the middle, the disc shallowly concave between a pair of low, minutely verrucose calli above the middle, the base truncate, hinged to the end of the column; **column** semiterete, 2.5 mm long, shallowly winged above the middle, the foot nearly as long, the anther, rostellum and stigma ventral.

ECUADOR: **Zamora-Chinchipe**: between Loja and Zamora, alt. ca. 2000 m, Nov. 1979, *W. Teague, D. Welisch & L. Figueroa s.n.* (Holotype: SEL), C. Luer illustr. 4810; new road east of the pass east of Loja, 2000 m, 25 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16151* (MO); pendant over edge of Río Jamboë, alt. 1250 m, 22 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16118* (MO); Cordillera del Condor, Feb. 1995, *A. Hirtz 6225* (MO).

This species is endemic in lowland, southeastern Ecuador. It is characterized by overlapping leaves in hanging chains up to a meter long. The rhizomes and ramicauls are clothed in loose, imbricating sheaths. The large, similarly appearing spathe is inflated, enclosing the peduncle with a single, purplish flower. The sepals are fleshy, pubescent, and connate basally. The petals are obovate; the lip is oblong with erect, lobe-like sides, and fringed at the apex.

Apoda-Prorepentia dodsonii (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 255, 2004.

Bas.: *Pleurothallis dodsonii* Luer, Selbyana 3(1): 96. 1976.

Ety.: Named in honor of Calaway Homer Dodson who discovered this species.

Plant medium in size, epiphytic, repent, pendent, the rhizome stout, branching, up to 20 cm long, 0.5-1 cm long between ramicauls, enclosed by loose, tubular sheaths; roots slender. Ramicauls stout, 3-10 mm long, enclosed by 2 loose, imbricating sheaths. **Leaf** prostrate to pendent, thickly coriaceous, more or less speckled with red, elliptical, subacute to obtuse, 2.5-4 cm long, 1.5-2.5 cm wide, the base cuneate into the sessile base. **Inflorescence** a single flower borne within an inflated spathe, 1-1.5 cm long, 5-8 mm wide, at the base of the leaf, the peduncle less than 1 mm long; floral bract thin, 1.5 mm long; pedicel stout, 1.5 mm long with a short filament; ovary shortly pubescent, 0.75 mm long; **sepals** red with white pubescence, fleshy, the dorsal sepal triangular, acute, 5 mm long, 2.5 mm wide at the base, connate to the lateral sepals for 1.5 mm, the lateral sepals triangular-ovate, oblique, acute, 5.5 mm long, 2.5 mm wide, barely connate at the base; **petals** red, edged in yellow, glabrous, obovate, acute, 3.5-4 mm long, 1.5 mm wide; **lip** orange, suffused with red below the middle, oblong-subtrilobed, subacute, 4 mm long, 2 mm wide expanded, the margins minutely denticulate above the middle, the sides erect and obtusely angled below the middle, the disc shallowly concave between a pair of low calli on the middle third, the base truncate, minutely lobed at the corners, hinged to the end of the column; **column** red, semiterete, 3 mm long, shallowly winged above the middle, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Tungurahua**: near Río Blanco east of Baños, alt. 1600 m, 8 Oct. 1961, *C.H. Dodson & L.B. Thien 889* (Holotype: SEL); same area, Mar. 1976, C. Luer & R. Kent, flowered in cultivation, Aug. 1976, *C. Luer 958* (SEL). **Napo**: trees in pasture near Baeza, alt. 1830 m, 25 Oct. 1971, *B. MacBryde 843, 862* (AMES, SEL)); between Papallacta and Baeza, alt. 2050 m, 6 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 6978* (AAU). **Pastaza**: along the banks of the Río Pastaza, alt. 1500 m, 14 Dec. 1880, *F.C. Lehmann 300* (W). **Bolívar**: near Balzapamba north of Babahoyo, alt. 730 m, *C.H. Dodson 70* (SEL).

PERU: **Junín**: Yapas, Pichis Trail, alt. 1350-1600 m, 28 June 1929, *E.P. Killip & A.C. Smith 25523* (US).

This species is not uncommon in its distribution through central Ecuador on both sides of the cordillera, as well as in adjacent Peru. It grows in shady leaf-litter on trunks of old mossy trees. The elliptical leaves form tangled masses, or sometimes hanging chains of overlapping leaves. The flower matures within a large, inflated spathe at the base of the leaf, but as the ovary swells, the flower begins to emerge.

Apoda-Prorepentia hystrix (Kraenzl.) Luer, comb. nov.

Syn.: *Physosiphon hystrix* Kraenzl., Ark. Bot. Stock. 16(8): 7, 1921.
Ety.: From the Latin *hystrix*, "a porcupine," referring to the hispid lip.

Syn.: *Cryptophoranthus hoehnei* Schltr., Arq. Bot. Estado São Paulo 1: 198, 1926.
Ety.: Named for F.C. Hoehne, noted Brazilian botanist, who collected this species.

Syn.: *Pleurothallis raduliglossa* Pabst., Orquidea 24: 44, 1962, replaced name for *Physosiphon hystrix*.
Ety.: From the Latin *radula*, "a rasp," and the Greek *glossa*, "tongue," referring to the rough lip.

Syn.: *Cryptophoranthus hystrix* (Kraenzl.) Garay, Arch. Jard. Bot. Rio de Janeiro 13: 34, 1954.
Syn.: *Phloeophila hystrix* (Kraenzl.) Garay, Orquideología 9: 118, 1974.

Plant small, epiphytic, repent, the rhizome stout, 3-5 mm long between ramicauls, roots slender. Ramicauls stout, more or less prone, 1-2 mm long, enclosed by 2 loose, tubular sheaths. **Leaf** prostrate, overlapping, coriaceous, broadly elliptical to suborbicular, rounded and notched at the apex, sessile, 12-15 mm long, 8-15 mm wide, the base rounded. **Inflorescence** a single flower, borne by a peduncle 1 mm long; floral bract inflated, 3-4 mm long; pedicel 1 mm long; ovary densely short-pubescent, 1.5-2 mm long; **sepals** fleshy, shortly pubescent externally, the dorsal sepal elliptical-ovate, subacute, 7-8 mm long, 2-3 mm wide, 3- to 5-veined, connate to the lateral sepals for 3-4 mm, the lateral sepals connate to near the apex into an ovoid, obtuse, minutely bifid, concave synsepal, 6.5-7 mm long, 5 mm wide, 6-veined; **petals** spathulate, unguiculate, 4.5-5.5 mm long, 1.8 mm wide, 1- or 2-veined, the blade ovate, acute, microscopically denticulate, abruptly narrowed into a claw for the basal third; **lip** oblong-subtrilobed, 4 mm long, 1.5 mm wide, 2 mm wide expanded, the apex densely echinate, subacute to rounded, the sides of the middle third erect, the disc with longitudinal carinae, contracted in the basal third into a thick claw, with a lobule at each corner, hinged between to the column-foot; **column** slender, 3.5 mm long, minutely dentate at the apex, the anther, rostellum and stigma ventral, the foot thick, 1 mm long.

BRAZIL: **Paraná**: Jaguariahyva, flowered in cultivation 27 Feb. 1911, *P. Dusén 11577* (Holotype of *Physosiphon hystrix*: S), C. Luer illustr. 17113.
São Paulo: Bosque da Saude, *F.C. Hoehne s.n.* (holotype of *Cryptophoranthus hoehnei*: SP 5254).

This species, endemic in southern Brazil, is characterized by prostrate, round, alternating, overlapping leaves produced by a long-repent rhizome. A single flower is produced on a short peduncle at the base of the leaf. The fleshy sepals are shortly pubescent, with the dorsal sepal connate to the synsepal for about half its length. The petals are spathulate and acute. The apex of the lip is densely muricate.

Apoda-Prorepentia karlii (Pabst) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 255, 2004.

Bas.: *Pleurothallis karlii* Pabst, Arch. Jard. Bot. Rio de Janeiro 14: 14, 1956.
Ety.: named for Gehrhard Karl, who collected this species.

Plant small, epiphytic, repent-ascending, the rhizome stout, 3-5 mm long between ramicaul; roots slender and filamentous and branching. Ramicauls erect to suberect, 4-6 mm long, enclosed by 1-2 tubular, glabrous, evanescent sheaths. **Leaf** rigidly coriaceous, broadly elliptical, obtuse, obscurely emarginate, 1.7-2.5 cm long, 0.8-1.8 cm wide, the base rounded, sessile; spathe 3-5 mm long. **Inflorescence** a successively few-(4)flowered raceme borne by a peduncle 3 mm long; floral bract 2-3 mm long; pedicel 2 mm long; ovary 0.8 mm long; **sepals** dark purple, glabrous, fleshy, the dorsal sepal narrowly elliptical-ovate, acute, 7-8 mm long, 2-3 mm wide, 3-veined, ecarinate, the lateral sepals falcate, acute, connate 2 mm into a concave synsepal 8 mm long, each 2-3 mm wide, 3-veined; **petals** narrowly elliptical, acute, 2.8-3 mm long, 0.7-1 mm wide, 1- to very faintly 3-veined; **lip** thick, oblong-trilobed, rounded and minutely denticulate at the apex, 3-3.5 mm long, 1.5 mm wide unexpanded, the basal half with incurved, lateral lobes with appressed, subacute apices, that cannot be expanded without fracturing the lip, the disc diffusely and minutely papillose-verrucose, the base truncate with a row of 3-4 small, erect, digitiform calli, shortly unguiculate beneath, attached to the tip of the column-foot; **column** semiterete, winged above the middle, denticulate at the apex, 3 mm long, the foot 2 mm long.

BRAZIL: **Rio Grande do Sul**: San Francisco de Paula, alt. 900 m, Apr. 1952, *G. Karl s.n.* (Holotype probably destroyed at HB). **Rio de Janeiro**: Munic. Nova Friburgo, Maceá de Cima, alt. ca. 1600 m, 2006, *H. Seehawer 1281* (Neotype here designated: RB, Isoneotype: MO).

This species is rare in southern Brazil. The holotype was published as being in the author's herbarium, which became included in the Herbarium Bradeanum. No dry material is there, and if it existed as pickled material, it was probably discarded (pers. comm. Toscano de Brito).

Small, broadly elliptical, overlapping leaves are produced by short ramicauls along a creeping rhizome. Slender roots produce capillary, branching roots. A single, dark purple flower is produced successively in an abbreviated few-flowered raceme from the base of a leaf. The sepals are fleshy and glabrous, the dorsal sepal is narrowly ovate, and the lateral sepals are falcate and connate to near the middle. The petals are narrowly elliptical. The lip is thickly three-lobed and diffusely minutely papillose with incurved lateral lobes occupying the basal halfAn row of three (or four, if the center callus is divided into two) small, erect, fingerlike calli stand along the basal margin above a short claw.

Apoda-Prorepentia kateora (Garay) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 255, 2004.

Bas.: *Physothallis kateora* Garay, Orquideología 9: 133, 1974.

Ety.: of unexplained etiology.

Syn.: *Pleurothallis kateora* (Garay) Luer, Phytologia 49: 209, 1981.

Plant medium in size, epiphytic, repent, pendent, the rhizome stout, branching, up to 20 cm long, 1-2.2 cm long between ramicauls, enclosed by loose, oblique, compressed sheaths; roots slender. Ramicauls stout, 1-1.3 cm long, enclosed by 2 oblique, compressed, imbricating sheaths. **Leaf** pendent, coriaceous, elliptical, acute, 3-6 cm long, 1.2-2 cm wide, the base cuneate into the sessile base. **Inflorescence** a single flower borne from an oblique spathe, 1-2 cm long, 0.5 cm wide, at the base of the leaf, the peduncle less than 1 mm long; floral bract thin, 3-4 mm long; pedicel stout, 5-6 mm long with a slender filament 1-2 mm long; ovary glabrous, 2-3 mm long; **sepals** yellow, suffused with red-brown toward the base, fleshy, cellular-glandular, the dorsal sepal oblong-obovate, obtuse, concave, 9.5 mm long, 5 mm wide, connate to the lateral sepals for 6 mm into a broad, cylindrical tube, the lateral sepals oblong, oblique, obtuse, broadly acuminate at the tip, 7 mm long, 4 mm wide, connate 2 mm, lightly adherent for 3 mm more; **petals** yellow, glabrous, obovate, acute, 4.25 mm long, 1.75 mm wide; **lip** yellow, lightly suffused with red, oblong-obovate, trilobed, 5.5 mm long, 2.3 mm wide, the apex smooth, dilated, obtuse, the lateral lobes narrow, erect, acute, uncinate, the disc smooth, shallowly concave, the base truncate, with a minute lobule at each corner, hinged to the end of the column-foot; **column** yellow, semiterete, 3.5 mm long, the foot red-orange, 2.5 mm long, the anther, rostellum and stigma ventral.

COLOMBIA: **Chocó**: Carmen de Atrato, Cañon de Toro, cultivated in Medellín by Alvaro Mejía, *G. Escobar 1078* (Holotype: AMES); same collection *R. Escobar 1012* (AMES); same collection, cultivated by M. & O. Robledo at La Ceja, Antioquia, 16 Oct. 1977, *C. Luer 2041* (SEL).

This rare species is known from only the original collection in the Western Cordillera of Colombia. In habit, it is similar to *Apoda-Prorepentia calypso* (Luer) Luer and *A. portilloi* (Luer & R.Escobar) Luer with long, pendent chains of overlapping, elliptical leaves with large, loose, compressed sheaths of the ramicauls and rhizome. The tubular flower protrudes from the margin of the spathe, compressed and inflated as are the sheaths. The sepals are deeply connate into a broad, cylindrical tube. Out of sight are the acute petals and an obovate lip with small, erect, uncinate, marginal lobes.

Apoda-Prorepentia melanochthoda (Luer & Hirtz) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 255, 2004.

Bas.: *Pleurothallis melanochthoda* Luer & Hirtz, Lindleyana 11: 169, 1996.

Ety.: From the Greek *melanochthodos*, "with black warts," referring to the leaves.

Plant small in size, epiphytic, repent, the rhizome stout, up to 20 cm long, 1-1.5 cm long between ramicauls, enclosed by loose sheaths; roots slender. Ramicauls stout, 4-5 mm long, enclosed by 1-2 inflated sheaths. **Leaf** more or less prostrate, thickly coriaceous, elliptical, subacute, 25-33 mm long, 12-15 mm wide, the surface green with numerous, black excrescences, the base broadly cuneate into the sessile base. **Inflorescence** a single flower borne at the base of the leaf from a loose, crested spathe 6-10 mm long, the peduncle less than 1 mm long; floral bract thin, 2 mm long; pedicel stout, 3 mm long with a filament about as long; ovary shortly pubescent, 1.5 mm long and broad; **sepals** orange-brown, thickly fleshy, non-spreading, pubescent externally, the dorsal sepal triangular, acute, 7 mm long, 3.5 mm wide at the base, connate to the lateral sepals for 1 mm, the lateral sepals connate half the length into a deeply concave, scaphoid, acute synsepal, 7 mm long, 5 mm broad unexpanded, the apices apiculate, approximate; **petals** orange-brown, glabrous, spathulate, 3.5 mm long, 1 mm wide, the apex dilated, obtuse, shortly apiculate, with a low callus about midway near the base of the claw; **lip** orange, thick, ovate-oblong, unguiculate, 4 mm long, 1.5 mm wide unexpanded, the margins long-fimbriate above the middle, the apex subacute, spiculate, the disc with a pair of erect, parallel lamellae from the base of the blade and becoming denticulate toward the apex, the blade with a transverse callus above the claw, the claw broad, less than 1 mm long, bilobulate, hinged to the base of the column; **column** terete, 3 mm long, broadly winged above the middle, the foot thick, nearly as long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: epiphytic in remnant of wet forest north of Macas, alt. 1,050 m, 15 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup, A. Hirtz & S. Ortega 13906* (Holotype: MO).

This species is related to *Apoda-Prorepentia testifolia* (Sw.) Luer which is widely distributed across Central America and the Antilles to Venezuela. This species, however, is known only from one area in eastern Ecuador at a relatively low altitude. It is easily identified by the creeping habit with rigid, elliptical leaves covered by small, black warts. Although superficially similar to those of *A. testifolia*, the sepals are extremely thick and very acute instead of obtuse or rounded. The petals and lip are basically similar, but the calli of the lip of *A. melanochthoda* (Luer & Hirtz) Luer are erect and well-developed, and the fimbriate margins of the lip are less well-developed.

Apoda-Prorepentia portilloi (Luer & R.Escobar) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 255, 2004.

Bas.: *Pleurothallis portilloi* Luer & R.Escobar, Orquideología 15: 144, 1982.

Ety.: Named for the late David Portollo, co-collector of the species.

Plant medium in size, epiphytic, repent, pendent, the rhizome stout, up to 40 or 50 cm long, 8-16 mm long between ramicauls, enclosed by 2 fugacious, oblique, tubular sheaths; roots slender. Ramicauls stout, 10-15 mm long, enclosed by an oblique, tubular sheath. **Leaf** pendent, thinly coriaceous, mottled with purple beneath, elliptical, slightly conduplicate, acute to subacute, 3-4.5 cm long, 2 cm wide expanded, the base cuneate into the sessile base. **Inflorescence** a short, 3.5 mm long, congested, successively 4- to 5-flowered raceme borne within a large, inflated, foliaceous spathe, 16-22 mm long, 5-7 mm wide, at the base of the leaf, the peduncle 3 mm long; floral bract thin, 3 mm long; pedicel stout, 2 mm long, the terminal flower with a filament ca. 1 mm long; ovary white, suffused with rose, 2 mm long; **sepals** yellow, suffused with red toward the base, fleshy, glabrous, the dorsal sepal nearly free, oblong, acute, 7.5 mm long, 2 mm wide, the lateral sepals connate into an oblong, concave, obtuse synsepal, 6 mm long, 5.5 mm wide, barely bifid at the tip with the tips of the sepals obtuse, abruptly short-acuminate or apiculate; **petals** yellow, red at the base, obovate-spathulate, obtuse, unguiculate basally, glabrous, 4 mm long, 1.75 mm wide; **lip** yellow, suffused with orange medially, suffused red at the base, oblong-obovate, subtrilobed, 3.75 mm long, 1.5 mm wide unexpanded, the apex round, minutely denticulate, with small, low, rounded marginal lobes below a pair of intramarginal calli, the disc shallowly concave between, the base unguiculate, thinly hinged between a pair of minute, basal lobules, to the end of the column; **column** white, semiterete, 3 mm long, shallowly winged above the middle, the foot nearly as long, the anther, rostellum and stigma ventral.

COLOMBIA: **Norte de Santander**: Municip. Villacaro, Llanitos, between Tara and Sardinata, alt. 1730 m, 12 Nov. 1981, *C. Luer, J. Luer, R. Escobar & D. Portillo 6688* (Holotype: SEL; Isotype: JAUM).

This species, endemic in the Eastern Cordillera of Colombia, is similar vegetatively to the Ecuadorian *Apoda-Prorepentia calypso* (Luer) Luer, both plants producing long, pendent chains of heavy, overlapping leaves with the inflorescence hidden in a large, sheathlike spathe, but not unlike other members of the genus. The sepals are glabrous externally; the petals are unguiculate; and the lip is obovate with the rounded apex minutely denticulate.

Apoda-Prorepentia testifolia (Sw.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 255, 2004, as *testaefolia*

Bas.: *Epidendrum testaefolium* Sw., Prodr. (Swartz) 122, 1788.
Ety.: From the Latin *testaefolius*, "testa-like leaves," referring to the appearance of the leaves.

Syn.: *Cymbidium testaefolium* (Sw.) Sw., Nova Acta Regiae Soc. Sci. Upsal. 6: 71, 1799.

Syn.: *Pleurothallis sarcophylla* Rchb.f., Bonplandia 3: 224, 1855.
Ety.: From the Greek *sarcophyllon*, "fleshy leaf," referring to the leaves.

Syn.: *Pleurothallis testaefolia* (Sw.) Lindl., Ann. Mag. Nat. Hist. ser. 3(1): 328, 1858.

Syn.: *Humboldtia sarcophylla* (Rchb.f.) Kuntze, Revis. Gen. Pl. 2: 668, 1891.

Syn.: *Humboldtia testaefolia* (Sw.) Kuntze, Revis. Gen. Pl. 2: 668, 1891.

Syn.: *Cryptophoranthus pectinatus* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 277, 1923.
Ety.: From the Latin *pectinatus*, "like a comb," referring to the overlapping leaves.

Syn.: *Pleurothallis helleriana* L.O.Williams, Fieldiana Bot. 31: 42, 1964, replaced name for *Cryptophoranthus pectinatus* Schltr., 1923, not *C. pectinatus* Lindl., 1939.
Ety.: Named for the late Alphonse Heller of Managua, Nicaragua, co-collector of the species.

Plant medium in size, epiphytic, repent, more or less pendent, the rhizome stout, up to 40 cm long, 5-8 mm long between ramicauls, enclosed by loose, tubular sheaths; roots slender. Ramicauls stout, 2-5 mm long, enclosed by an inflated sheath. **Leaf** pendent or prostrate, thickly coriaceous, elliptical, subacute to obtuse, sometimes spotted with purple, 1.5-5 cm long, 1.5-2 cm wide, the base broadly cuneate into the sessile base. **Inflorescence** a single flower borne within a foliaceous spathe, 4-5 mm long, at the base of the leaf, the peduncle less than 1 mm long; floral bract thin, 2 mm long; pedicel stout, 1.5 mm long, with a filament about as long; ovary densely pubescent, 1.5 mm long; **sepals** suffused with dark purple-brown, fleshy, long-pubescent externally, glabrous within, the dorsal sepal oblong, obtuse, 5-6 mm long, 2-2.5 mm, connate basally to the lateral sepals, the lateral sepals oblong, obtuse, concave, inflated, 5-6 mm long, 5 mm wide, connate about midway to form a concave synsepal; **petals** yellow to brown, glabrous, spathulate, 2.5 mm long, 1 mm wide, minutely denticulate at the rounded apex, the claw with a small callus; **lip** dark purple-brown, obovate-subtrilobed, rounded at the apex, 3.5 mm long, 2 mm wide, the margins denticulate-fringed above the middle, the margins erect above the base with a small, subacute lobule, the disc spiculate, shallowly concave between a pair of converging calli on the middle third, thick toward the base forming a transverse callus, the base thin and truncate beyond, bilobulate, hinged to the end of the column-foot; **column** semiterete, 2.5 mm long, denticulate-winged at the apex, the foot nearly as long, the anther, rostellum and stigma ventral.

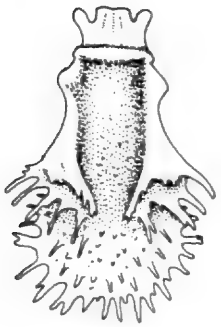
JAMAICA: without locality, *O. Swartz s.n.* (Holotype of *Epidendrum testaefolium*: Holotype: S; Isotype: W); without locality, 1858, *Mr. March 1276* (K); without locality, *Purdie s.n.* (K); without locality, alt. 600-1,000 ft, 1881, *Syme, Morris 2122* (K, NY); without locality, *Wilson s.n.* (K); near Mabess River, alt. 4,000 ft., 15 Feb. 1899, *W. Harris 7548* (K); 10 Dec. 1899, *W. Harris 7551* (BR): near Moody's Gap, 10 Sept. 1908, *N.L. Britton 3349* (AMES, NY). Without collection data, 1838, *Mr. March 12766* (K); without collection data, *Syme s.n.* (NY); without collection data, *Wilson s.n.* (K); without collection data, *Purdie s.n.* (K).
HAITI: Ravine northwest of Marmelade, alt. 2,160 ft., 3 Aug. 1905, *G.V. Nash & N. Taylor 1330* (NY).
DOMINICAN REPUBLIC: Monte Cristi, Monción, Lagunas de Cenobi, alt. 1100 m, 15 June 1929, *E.L. Ekman 12858* (AMES, K, NY, S, US); La Diferencia, south of El Rubio, Dajao River, alt. 700 m, 20 May 1968, *A.H. Liogier 11317* (AMES, NY, US); Sierra de Yaroe, alt. 850-900 m, 29 Aug. 1968, *A.H. Liogier 12403* (AMES, NY, US); Yuna, along Río Yuna, alt. 800 m, 10 Oct. 1976, *A.H. Liogier 25523* (NY). **Santo Domingo**: Monte de David, Rancho Arriba, alt. 800 m, 16 Dec. 1973, *A.H. Liogier 20857* (NY). **La Lanza**: between Monteada Nueva and Polo, alt. 900-1000 m, 27 Feb. 1969, *A.H. Liogier 14318* (NY).
CUBA: Oriente, near Monte Verde, Jan.-July 1859, *C. Wright 1496* (AMES, BR, BREM, HAC, K, W); 1856-57 *C. Wright 648* (AMES, K); Cobre Range, Loma del Gato, alt. 1000 m, 11 July-14 Aug. 1921, *Hnos. Leon, Clement & Roca 10242* (AMES); Loma del Gato, July 1944, *Bro. Alain 290* (AMES); Oriente, crest of Sierra Maestra between Pico Turquino and La Bayamesa, alt. 1350 m, 27-28 Oct. 1941, *C.V. Morton & J. Acuña 3548* (AMES, HAC, K, NY, US); Sierra Maestra, between el Arroyo Peladero y El Catey del Alto de Valenzuela, 5-8 Apr. 1955, *M. López F. 2201* (HAJB); Loma del Gato, Aug. 1944, *Bro. Alain 290* (HAC); Chirrico, Aguada de Joaquin, 27 Apr. 1987, *L. Mecias s.n.* (HCJB).
MARTINIQUE: Cocoyer, 1867-70, *M. Hahn 532* (AMES, BR, K).
SURINAME: Bethabais, *Wullschlaegel 1082* (M, W).
VENEZUELA: without collection data, cultivated by Consul Schiller in Hamburg, "soll aus Caracas stammen," (holotype of *P. sarcophylla*: W); near Colonia Tovar, 1854-56, *A. Fendler 1459* (K); below Páramo la Negra, alt. ca. 9,000 ft., Oct. 1962, *G.C.K. Dunsterville 262*.

MEXICO: **Oaxaca**: alt. 3,000 ft., 1840, *A.Rich. & Galeotti 5175* (W).
GUATEMALA: **Alta Verapaz**: near Cobán, cultivated by O. Mittelstaedt in Cobán, 27 Nov. 1990, *C. Luer 14846* (MO).
HONDURAS: **Comayagua**: Barranco Trincheras, north of Signatepeque, alt. 1200 m, 14 Apr. 1951, *L.O. Williams & A. Molina 18055* (EAP).
NICARAGUA: **Matagalpa**: near Santa Fe, east of Matagalpa, alt. ca. 1000 m, 1962, flowered in cultivation 18 Feb. 1963, *L.O. Williams & A. Heller 25086* (holotype of *Pleurothallis helleriana*: F).
COSTA RICA: **Cartago**: Irazú, ca. 1870, *A. Endres 78* (W) as *P. sarcophylla*; Agua Caliente, Jan. 1924, *C.H. Lankester 577* (AMES). **Alajuela**: vicinity of San Ramón, 1921, *G. Acosta s.n.* (holotype of *P. pectinata*, destroyed at B).

Although uncommon, this species is widely distributed in Central America, the Antilles, and northern South America, at both medium and high altitudes. It is characterized by a repent rhizome that often hangs on tree trunks. The pendent or prostrate leaves are elliptical and often alternately overlapping. The small, darkly colored flower emerges within a spathe at the base of a leaf. The sepals are variously pubescent, the laterals connate into a concave synsepal. The lip is fimbriate-spiculate with small lateral lobes above the base.

REFERENCES

LINDLEY, J., 1859. Fol. Orchid. *Pleurothallis*. J. Matthews, Covent Garden, London p. 2.
LUER, C.A., 1986. Icones Pleurothallidinarum I. Systematics of the Pleurothallidinae. Monogr. Syst. Bot. Missouri Bot. Gard. 20: 31.



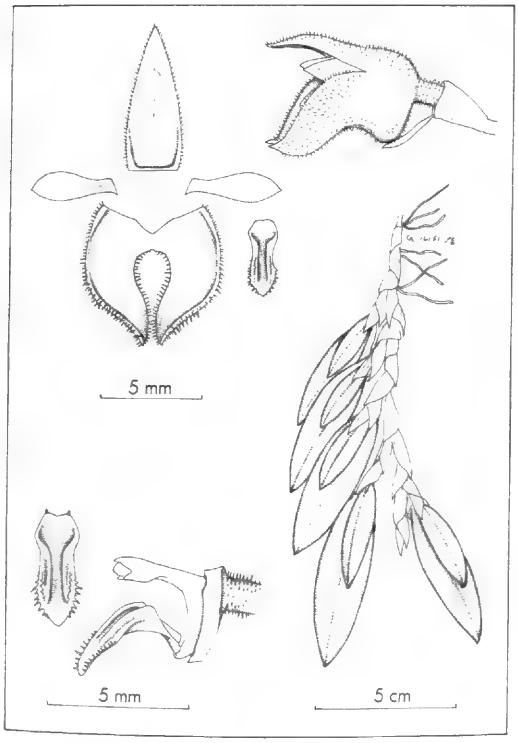


Fig. 1. Apoda-Prorepentia calypso

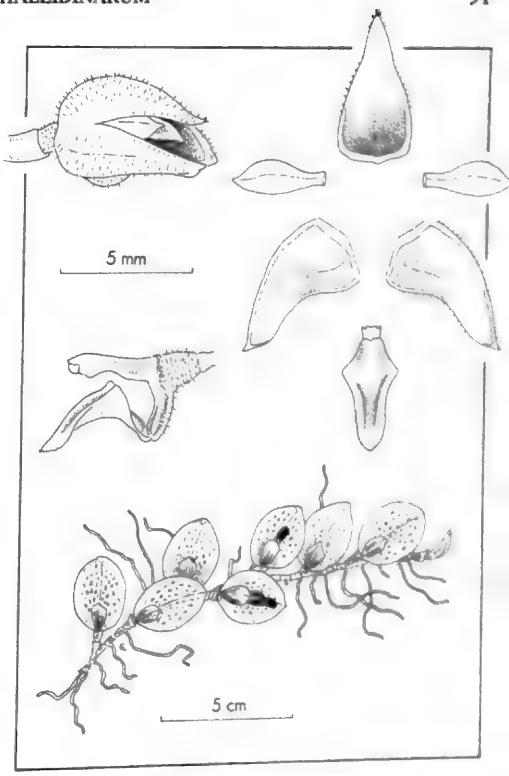


Fig. 2. Apoda-Prorepentia dodsonii

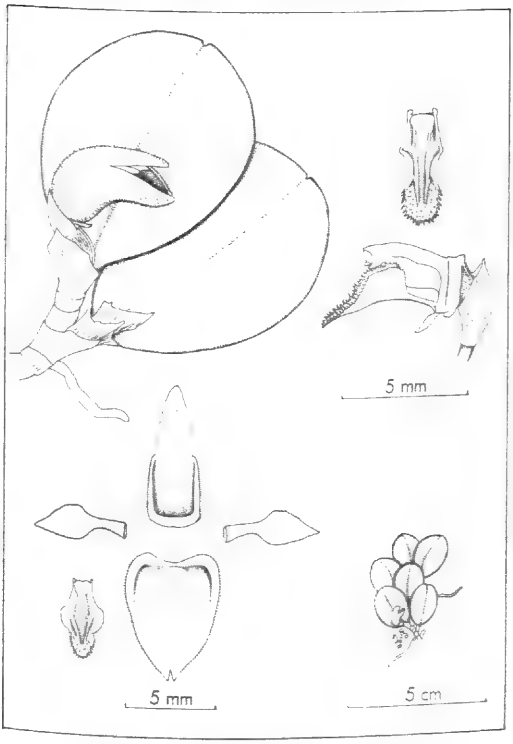


Fig. 3. Apoda-Prorepentia hystrix

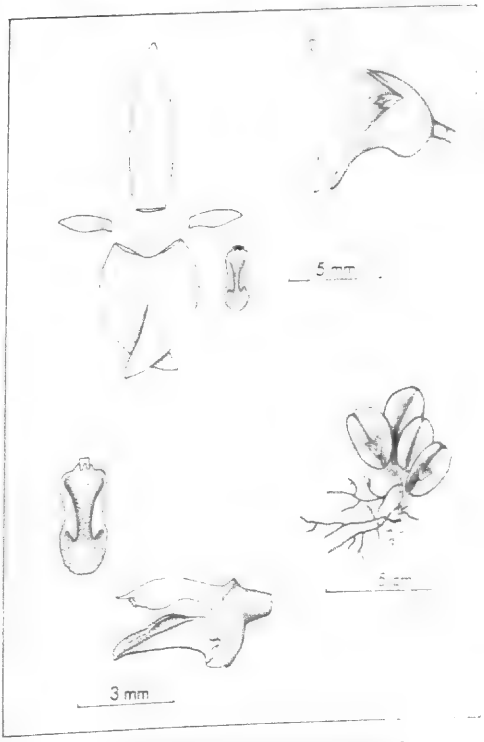


Fig. 4. Apoda-Prorepentia karlii

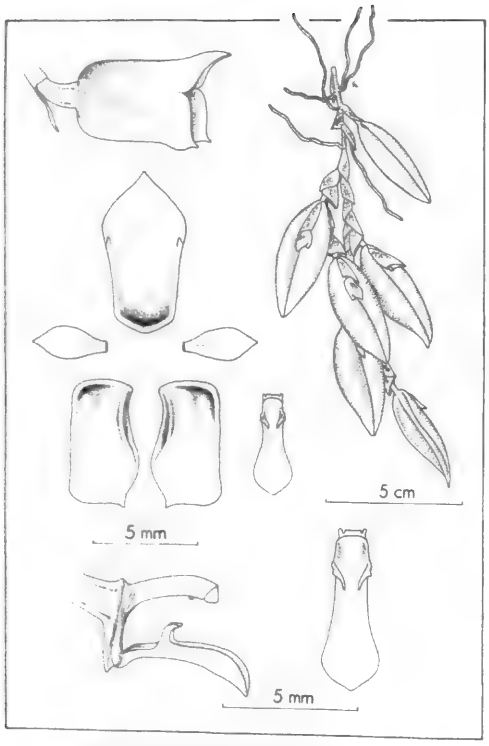


Fig. 5. Apoda-Prorepentia kateora

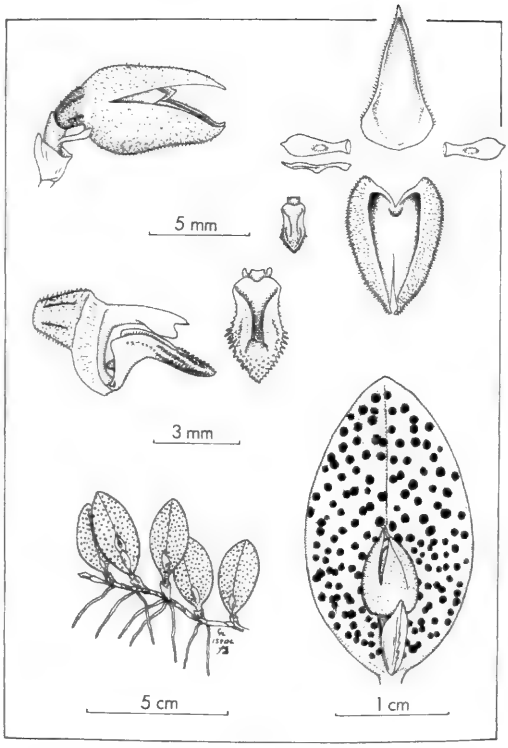


Fig. 6. Apoda-Prorepentia melanochthoda

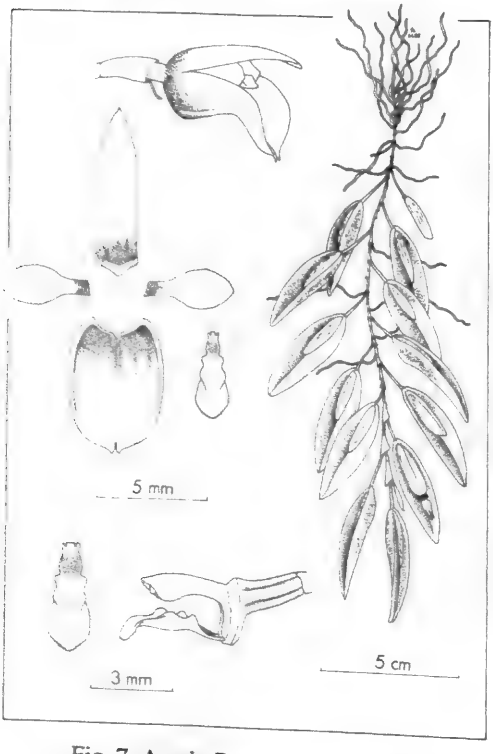


Fig. 7. Apoda-Prorepentia portilloi

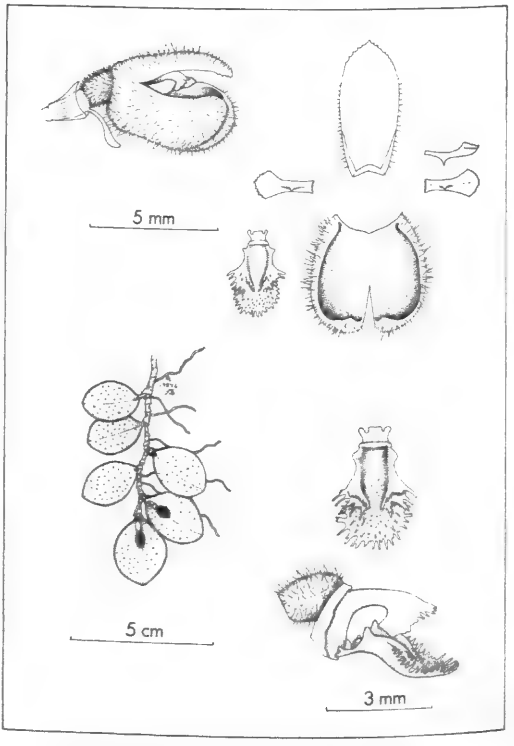
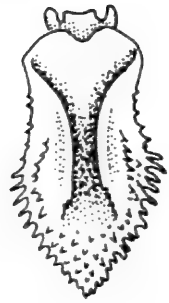


Fig. 8. Apoda-Prorepentia testifolia

INDEX TO SCIENTIFIC NAMES

Apoda-Prorepentia **83**, 84
calypso 83, 84, **85, Fig. 1.**, 87, 88
dodsonii 84, **85, Fig. 2.**
hystrix 84, **86, Fig. 3.**
karlii 84, **86, Fig. 4.**
kateora 83, 84, **87, Fig. 5.**
melanochthoda 83, 84, **87, Fig. 6.**, 88
portilloi 84, 87, **88, Fig. 7.**
testifolia 83, 84, 88, **89, Fig. 8.**
Barbosella 83
Cryptophoranthus hoehnei 84, 86
Cryptophoranthus hystrix 84, 86
Cryptophoranthus pectinatus 89
Cryptophoranthus sarcophyllus 84
Cymbidium testaefolium 83, 89
Epidendrum testaefolium 89
Humboldtia sarcophylla 89
Humboldtia testaefolia 89
Physosiphon hystrix 84, 86
Phloeophila hystrix 84, 86
Physothallis kateora 87
Pleurothallis 83
subgen. Apoda-Prorepentia 83
sect. Apodae-Prorepentes 83
calypso 84, 85
dodsonii 84, 85
helleriana 84, 89
karlii 84, 86
kateora 84, 87
melanochthoda 84, 87
portilloi 84, 88
raduliglossa 84, 86
sarcophylla 84, 89
testaefolia 83, 84, 89,



MISCELLANEOUS SMALL PLEUROTHALLID GENERA
not previously treated in an *Icones Pleurothallidinarum*

The following small, diverse genera are orphans without obvious relationships, which might be determined eventually by DNA analyses. Those species of genera that have not been treated in a previous *Icones Pleurothallidinarum* are featured here with descriptions, and with illustrations that have not been published.

CUCUMERIA

Cucumeria Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 257, 2004.

Bas.: *Pleurothallis* subgen. *Specklinia* sect. *Cucumeres* Luer, Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 81, 1986.

Ety.: From the Latin *cucumeris*, "like a cucumber," referring to the verrucose flowers.

Type: *Pleurothallis cucumeris* Luer [=*Cucumeria cucumeris*].

A genus of one species characterized by well-developed ramicauls; a short, congested raceme; and a verrucose pedicel, ovary, and sepals.

Cucumeria cucumeris (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 257, 2004.

Bas.: *Pleurothallis cucumeris* Luer, Selbyana 5: 162, 1979.

Ety.: From the Latin *cucumeris*, "like a cucumber," referring to the verrucose flowers.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, terete, 5-11 cm long, enclosed by 4-6 loose, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to acute, 5-8 cm long, 1.3-2 cm wide, cuneate below into a petiole 1-2 cm long. **Inflorescence** a 2- to 5-flowered raceme from a node below the abscission layer; peduncles verrucose, 5 mm long; floral bracts white, tubular, papery; pedicels verrucose, 4 mm long; ovaries verrucose, 1 mm long; **sepals** light yellow-green, thickly fleshy, carinate-verrucose externally, the dorsal sepal ovate, narrowly obtuse, 8 mm long, 3 mm wide, 3-veined, the lateral sepals connate into an oblong, obtuse synsepal, 7.5 mm long, 4 mm wide, 6-veined, forming an obtuse mentum with the column-foot; **petals** translucent yellow, obliquely ovate, unguiculate, obtusely angled on the lower margin, entire, 3 mm long, 1.75 mm wide, 2-veined; **lip** light yellow, oblong, obtuse, 3 mm long, 1 mm wide, cellular-glandular toward the apex, the margins broadly angled and erect on the lower two thirds, the base truncate, broadly hinged to the column-foot; **column** green, longitudinally winged, semiterete, stout, 2 mm long, denticulate at the apex, anther and stigma ventral, the foot thick, shorter than the column.

PANAMA: **Chiriquí**: cloud forest, Cerro Colorado, alt. ca. 1700 m, collected Feb. 1977, flowered in cultivation 10 Dec. 1977, *C. Luer, J. Luer & R.L. Dressler 2258* (Holotype: SEL).

This species, apparently endemic in western Panama, is without close relatives. It is characterized by well-developed ramicauls enclosed by a series of tubular sheaths; elliptical, petiolate leaves somewhat shorter than the ramicauls; a short, few-flowered raceme with a verrucose peduncle and verrucose pedicels and ovaries. The sepals are thickly fleshy and carinate-verrucose; the petals are obliquely ovate, and the lip is oblong with erect margins below the apical third.

Illustration: Monogr. Syst. Bot. Missouri Bot. Gard. 20 (Icones-III): 82, 1986, Plate 41.

EMPUSELLA

Empusella (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 258, 2004.

Bas.: *Pleurothallis* subgen. *Empusella* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 41, 1986.

Ety: From the Latin *empusella*, "a little hobgoblin," alluding to the fancied appearance of the flowers.

Type: *Pleurothallis endotrachys* Rchb.f. [=*Empusella endotrachys*].

A unispecific genus with a habit similar to *Masdevallia* Ruiz & Pav., a compressed peduncle, and rigid sepals verrucose within.

Empusella endotrachys (Rchb.f.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 258, 2004.

Bas.: *Pleurothallis endotrachys* Rchb.f., Linnaea 41: 95, 1877.
Ety.: From the Greek *endotrachys*, "rough inside," referring to the sepals verrucose within.

Syn.: *Pleurothallis pfavii* Rchb.f., Flora 69: 555, 1886.
Ety.: Named for Herr Pfau who collected this species.

Syn.: *Masdevallia platyrachis* Rolfe, Gard. Chron. (2): 178, 1888.
Ety.: From the Greek *platyrachis*, "flat rachis," referring to the ancipitous rachis.

Syn.: *Pleurothallis platyrachis* (Rolfe) Rolfe, J. Bot. 136, 1890.

Syn.: *Humboldtia endotrachys* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis spectabilis* Ames & C.Schweinf., Sched. Orch. 8: 34, 1925.
Ety.: From the Latin *spectabilis*, "spectacular," referring to the appearance of the plant.

Plant medium to large in size, epiphytic, caespitose; roots coarse. Ramicauls stout, terete, erect, 1-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly obovate, subacute to obtuse, 9-17 cm long, 1.5-3 cm wide, narrowly cuneate below into an ill-defined, conduplicate, subpetiolate base. **Inflorescence** a loose, distichous, subflexuous, successively several- to many-flowered raceme, to 20 cm long, borne by a compressed peduncle, up to 22 cm long, up to 6 mm broad, with a few bracts, from the ramicaul above the base; floral bracts conspicuous, oblique, compressed, subacute, 5-10 mm long; pedicels 6-15 mm long; ovary 4-5 mm long; **sepals** fleshy, green, yellow, orange, brown to red, carinate, glabrous externally, verrucose within, the dorsal sepal oblong-ovate, acute to narrowly obtuse, 16-22 mm long, 6 mm wide, 3-veined, free from the lateral sepals, the lateral sepals oblong, oblique, subacute to acute, 14-20 mm long, 4-5 mm wide, 3-veined, connate 2-3 mm at the base to form a mentum beneath the column-foot; **petals** thick, yellow to red-brown, minutely verrucose, oblong, obtuse, 3.5-5 mm long, 1 mm wide; **lip** thick, yellow to orange, elliptical-oblong, arcuate, obtuse, 5 mm long expanded, 2-2.5 mm wide, the disc shallowly concave between a pair of calli on the middle two thirds, the base truncate, recurved, hinged to the free tip of the column-foot; **column** greenish white, stout, winged above the middle, 5 mm long, the apex denticulate, the foot stout with a pair of calli, 3 mm long.

COSTA RICA: **Alajuela**: San Ramón, along "Barranca," 1867, *A.R. Endres 92* (Holotype: W); La Palma, alt. 1150 m, 6 Dec. 1922, *A.M. Brenes 164* (AMES); Monteverde, San Gerardo, Río Caño Negro, alt. 1050 m, 20 Oct. 1989, *E. Bello 1413* (INB, MO). **Guanacaste**: La Tejona, north of Tilarán, alt. 600-700 m, 25 Jan. 1926, *P.C. Standley & J. Valerio 45875* (AMES). **Heredia**: Fila Cañon del Río Sucio, alt. 450-700 m, 12 Nov. 1983, *I.A. Chacón & G. Herrera 1716* (CR). **Limón**: Cordillera de Talamanca, between Río Terbi and Río Siní, alt. 2300-2500 m, 11 Sept. 1984, *G. Davidse, G. Herrera & M. Grayum 28921* (CR, MO). **San José**: Vásquez de Coronado, Parqué Nac. Braulio Carrillo, Sendero La Botella, alt. 750 m, 21 Sept. 1990, *S. Ingram & K. Ferrell-Ingram 559* (CR, K, MO, SEL). Without collection data, cultivated at Kew, imported by *Shuttleworth s.n.* (holotype of *M. platyrachis*: K). **Puntarenas**: Coto Brus, Las Mellizas, border with Panama, alt. 2465 m, 15 Aug. 1989, *G. Herrera 3411* (MO).
EL SALVADOR: **Ahuachapán**, San Benito, east of La Cumbre, 8 July 1992, *E. Sandoval 491* (LAGU, MO); same area, alt. 1250 m, 30 Mar. 1995, *M. Sandoval & E. Sandoval 876* (B, K, LAGU, MO, SEL).
MEXICO: **Oaxaca**: Colonia Rodolfo Figuero, cultivated by J & L Orchids, 21 Oct. 1975, *C. Luer 1216* (SEL).
GUATEMALA: **Alta Verapaz**: near Cobán, alt. 4,400 ft., cultivated by Otto Mittlestaedt, 13 Feb. 1990, *C. Luer 14606* (MO).
BELIZE: **Cayo**: La Flor at Rio de la Flor, alt. 1,700-2,000 ft., 3 June 1973, *T.B. Croat 23747* (MO). **Toledo**: Little Quartz Ridge, alt. 940-1040 m, 21 Feb. 1997, *T. Hawkins 1510* (MO, SEL).
PANAMA: **Chiriquí**: without locality, 4 Dec. 1880, *Pfau 4* (holotype of *P. pfavii*: W); Guadelupe, above Cerrro Punta, alt. 6,000-7,000 ft., 22 Oct. 1977, *J.P. Folsom 6014* (MO); Fortuna dam site, collected by A. Pridgeon et al., 20 Mar. 1978, flowered in cultivation 29 Apr. 1980, *C. Luer 5238* (MO); Cerro Punta, Parqué Amistad, alt. 2100 m, 20 Oct. 1992, *G. McPherson 15941* (MO). **Veraguas**: Santa Fe, alt. 1500 m, Feb. 1924, *C.W. Powell 382* (MO). **Los Santos**: Azureo Peninsula, southwest of El Cortezo, alt. 2,900-3,000 ft., 26 Oct. 1978, *B. Hammel 5328* (MO). **Herrera**: above Chepo de las Minas, alt. 700 m, 19 Dec. 1977, *J.P. Folsom, R.B. Channel & G. Small 6976* (MO). **Darien**: Punta Guayabo Grande, alt. less than 100 m, 22 Jan. 1982, *S. Knapp & J. Mallet 3004, 3145* (MO).

This species was described by Reichenbach from a Costa Rican collection by Endres who had made meticulous illustrations and a detailed description. It is indeed a spectacular species for a genus without close relatives. The habit resembles that of a *Masdevallia* Ruiz & Pav. with a short ramicaul and a long leaf that is

gradually narrowed below. The inflorescence with a flattened peduncle arises from near the base of the ramicaul, and surpasses the leaf. The successively flowered raceme is subflexuous with conspicuous, conduplicate bracts. The flowers are variable in size and color with a free dorsal sepal and lateral sepals forming a mentum below the column-foot. The sepals are verrucose within; the petals are small, oblong and also verrucose; and the lip is oblong and arcuate with a pair of calli.

Illustration: Monogr. Syst. Bot. Missouri Bot. Gard. 20 (Icones-III): 43, 1986, Plate 18.

MIRANDOPSIS

Mirandopsis Szlach. & Marg., Polish Bot. J. 46(2): 117, 2001.

Syn.: *Pleurothallis* subgen. *Mirandia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 47, 1986.

Ety.: From *Mirandia* and *-opsis*, "like *Mirandia*."

Type: *Pleurothallis miranda* Luer [=*Mirandopsis miranda*].

A genus with a single species characterized by long-petiolate leaves borne by small but well-developed ramicauls; an erect spathe; single, long pedunculate flowers; an acutely deflexed lip; and an apical anther and stigma.

Mirandopsis miranda (Luer) Szlach. & Marg., Polish Bot. J. 46(2): 117, 2001.

Bas.: *Pleurothallis miranda* Luer, Phytologia 46: 369, 1980.

Ety.: From the Latin *mirandus*, "strange, causing wonder," alluding to the unusual characters of the species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, suberect, 1-4.5 cm long, enclosed by 3-4 loose, ribbed sheaths. **Leaf** erect, coriaceous, ovate, subacute, petiolate, the blade 18-27 mm long, 11-15 mm wide, the base contracted into a twisted and bent petiole 3-7 mm long. **Inflorescence** single flowers, borne ny capillary peduncles 12-24 mm long, enclosed within an erect spathe 8-13 mm long, borne from near the apex of the ramicaul; floral bracts 3-4 mm long; pedicels 3-4 mm long; ovary green with purple stripes, 2 mm long; **sepals** membranous, glabrous, greenish white, mottled with purple along the veins, the middle sepal ovate, acute, 5.5 mm long, 4 mm wide, 3-veined, the lateral sepals connate into a suborbicular, uppermost synsepal, 4.75 mm long, 4.75 mm wide, conically concave centrally, with a pair of small, rounded lamellae near the center, the apex rounded and shortly bifid; **petals** translucent, greenish white suffused and striped with purple, ovoid, unguiculate below the middle, inflated and deeply concave above the middle, 2.5 mm long, 1.9 mm wide; **lip** yellow, suffused with brown, acutely deflexed upon itself at the middle, 1.4 mm long, 1.5 mm wide, subquadrate above the middle, subtruncate with broadly rounded angles, held against the cuneate, lower half, which is held against the column, the base thick narrowly truncate, fixed to the base of the column; **column** erect, stout, cylindrical, 2.5 mm long, the anther apical, exposed, the stigma subapical, the foot obsolescent.

ECUADOR: **Pichincha**: forest along river toward Nanegal, alt. ca. 2500 m, Oct. 1979, collected by A. Hirtz and A. Andreetta, flowered in cultivation at SEL, 1 Jan. 1980, *C. Luer 4372* (Holotype: SEL).

This unusual species with no close relative has been collected only once in a forest near Quito. The ramicauls are suberect with an oblique, elongated spathe emerging from near the apex where the twisted petiole angles in the opposite direction to bear the leaf at an angle back in the other direction. The bilabiate flower with a cucullate synsepal is borne singly in a fascicle of elongated pedicels within the spathe. Within the cavity of the synsepal is a small, rounded pair of lamellae. The unguiculate petals are dilated and deeply concave above the middle. The lip is acutely deflexed upon itself at the middle, with the subquadrate apical half held against the cuneate basal half. The cylindrical column with an exposed, apical anther and stigma lies against the lip.

Illustration: Monogr. Syst. Bot. Missouri Bot. Gard. 20 (Icones-III): 49, 1986, Plate 22.

MIXIS

Mixis Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 258, 2004.

Ety.: From the Greek *mixis*, "a mixing," referring to the various morphological features.

Type: *Pleurothallis incongrua* Luer [=*Mixis incongrua*].

A unispecific genus distinguished by a well-developed ramicaul; a sessile leaf; a fascicle of peduncles; short racemes; connate lateral sepals; spathulate petals; a concave, truncate, bilamellate lip; and an elongate, dentate column.

Mixis incongrua Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 258, 2004. Fig. 1.

Bas.: *Pleurothallis incongrua* Luer, Orquideología 21: 127, 1999.

Ety.: From the Latin *incongruus*, "incompatible," referring to strange morphological features.

Plant medium in size, epiphytic, caespitose; roots numerous, slender. Ramicauls slender, erect, 12-20 cm long, with a thin, tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, ovate, acute, slightly acuminate, long-mucronate, 6-7 cm long, 2-2.5 cm wide, the base sessile, broadly cuneate to rounded. **Inflorescence** racemose, 1 to a few erect, lax, simultaneously few-flowered racemes, 4-5 cm long including the peduncle 2-3 cm long, subtended by a slender spathe ca. 5 mm long, at the base of the leaf; floral bracts infundibular, 2 mm long; pedicels 1 mm long; ovary 2.5 mm long; **sepals** translucent with red-violet spots, glabrous, the dorsal sepal concave, elliptical, obtuse, 7 mm long, 4.5 mm wide, 3-veined, the lateral sepals completely connate into an oblong, obtuse, more or less flat lamina, 8.5 mm long, 3.5 mm wide, 4-veined; **petals** membranous, spathulate, obtuse, 5 mm long, 2 mm wide, 3-veined; **lip** ovoid-subtrilobed, concave with erect and incurved sides, 3.5 mm wide, 2 mm broad unexpanded, the apex transverse, obtuse, decurved, the margins of the lobes at the apex with flat, intramural calli, the base broadly truncate attached to the base of the column; **column** longitudinally winged, semiterete, 3.5 mm long, footless, the anther dentate, and the stigma large, broad, ventral.

COLOMBIA: **Valle del Cauca**: Munic. of El Cairo, Cerro del Inglés, Serrania de los Paraguas, alt. 2400 m, 28 Dec. 1986, *P. Silverstone-Sopkin, N. Paz, R. T. González, I. Cabrera, D. Garcés & A. Henao 2686* (Holotype: CUVC; Isotype: MO).

The combination of morphological features of this species seems contradictory, failing to indicate a close relationship with any other species within the Pleurothallidinae. The habit is compatible with *Acianthera* Scheidw., *Acronia* C.Presl, and *Pleurothallis* R.Br. It is characterized by a long, slender ramicaul with thin, close sheaths and an ovate, sessile leaf. The loose, long-pedunculate, few-flowered raceme is a little shorter than the leaf. The dorsal sepal is obtuse and concave. The lateral sepals are fully connate into a flat, oblong synsepal. The petals are spathulate. The more or less truncate lip with incurved sides and intramural calli suggests *Crocodeilanthe* Rchb.f. & Warsz., but the habit and elongate column are incompatible. The lip also suggests *Orbis truncata* (Lindl.) Luer. The column is elongate, as long as the lip, and semiterete with the apex long-denticulate. Unfortunately, the pollinia were missing from the only specimen.

MYSTACORCHIS

Mystacorchis Szlach. & Marg., Polish Bot. J. 46(2): 117, 2001.

Syn.: *Pleurothallis* subgen. *Mystax* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 50, 1986.

Ety.: From the Greek *mystacos-orchis*, "mustachioed orchid," referring to the appearance of the flower.

Type: *Pleurothallis mystax* Luer [=*Mystacorchis mystax*].

A genus with a single species characterized by sessile leaves; a successively few-flowered raceme; a spathulate lip with a long, channeled claw; and a short column with an apical anther and stigma.

Mystacorchis mystax (Luer) Szlach. & Marg., Polish Bot. J. 46(2): 117, 2001.

Bas.: *Pleurothallis mystax* Luer, Selbyana 3: 146, 1976.

Ety.: From the Greek *mystax*, "a moustache," in allusion to the diverging lateral sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2.5 cm long, mostly enclosed by a loose tubular sheath and 1-2 sheaths at the base. **Leaf** erect, broadly elliptical, obtuse, 16-21 mm long, 12-15 mm wide, the base rounded, sessile. **Inflorescence** a distantly and successively 2-flowered raceme, ca. 2.5 cm long, borne by a capillary peduncle from the base of the leaf, with a spathe 2 mm long; floral bracts 2-3 mm long; pedicels 5-8 mm long; ovary 2-3 mm long; **sepals** membranous, glabrous, tall-carinate, white with the outer halves purple, the dorsal sepal elliptical-ovate, acute, acuminate, 14 mm long, 4 mm wide, 3-veined, the lateral sepals more or less linear, acute, 14 mm long, 3.5 mm wide together above the base, connate basally for 3-4 mm, then each sepal abruptly diverging 90°, the carinae 1 mm tall; **petals** brown, ovate, oblique, shortly unguiculate, subacute, 4 mm long, 2 mm wide, 3-veined; **lip** red-brown, spathulate-unguiculate, 8 mm long, 2.75 mm wide, the blade ovoid, convex, rounded at the apex, the claw below the middle narrow, tubular, 4 mm long, longitudinally channeled between involute margins, the base with a small, transverse callus, connected to the base of the column; **column** erect, stout, cylindrical, 1.5 mm long, the anther red and yellow, terminal, exposed, the stigma subapical, 1 mm long, the foot obsolescent.

PANAMA: **Veraguas**: epiphytic in cloud forest near the continental divide above Santa Fe, alt. 650-750 m, 5 Sept. 1976, *C. Luer & R.L. Dressler 1261* (Holotype: SEL); northwest of Sana Fe, 20-21 Dec. 1974, *S. Mori & J. Kallunki 3926, 4002* (MO); north of Cerro Tute, 24 Oct. 1975, *J.T. & F. Witherspoon 8824* (MO); near Santa Fe, trail to Cerro Tute, 30 Nov. 1979, *T. Antonio 2925* (MO).

This species is endemic and locally abundant in a small area of central Panama. It is without close relatives. The leaves are broadly ovate and sessile, nearly as long as the ramicaul, and the loosely two-flowered raceme is longer than the leaf. The tall-carinate sepals are white with broad, purple margins. The lateral sepals diverge abruptly from below the middle with the apices opposite, 180°. The petals are small and shortly unguiculate. The lip is spathulate with an ovoid blade and a channeled claw. The footless column is small and erect with an apical anther nearly as large.

Illustration: Monogr. Syst. Bot. Missouri Bot. Gard. 20 (Icones-III): 51, 1986, Plate 23.

PHYSOSIPHON

Physosiphon Lindl., Edwards's Bot. Reg. 21: sub t. 1797, 1835.

Type: *Physosiphon loddigesii* Lindl., Edwards's Bot. Reg. 21: sub t. 1797, 1835.

Ety.: From the Greek *physosiphon*, "a bladder-like tube," referring to the sepaline tube.

Syn.: *Pleurothallis* subgen.*Physosiphon* (Lindl.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 50, 1986.

This genus of only two species is characterized by ramicauls about as long as or shorter than the leaves; a multiflowered raceme; sepals deeply connate into a tube constricted above the middle; small, membranous petals; a small, thick lip with intra-marginal calli; and a winged column.

Physosiphon asperrimus Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 292, 2006. Fig. 2.

Ety.: From the Latin *asperrimus*, "very exasperate," referring to the inner surfaces of the sepals.

Syn.: *Pleurothallis asperrima* Luer, Phytologia 49: 201, 1981.

Plant medium in size, epiphytic, densely caespitose; roots slender; ramicauls slender, erect, 3-5 cm long, occasionally prolific, with a tubular sheath from below the middle and 2-3 sheaths at the base. **Leaf** coriaceous, elliptical, obtuse, 3.5-7.5 cm long including a petiole 0.5-1 cm long, 1.6-2.8 cm wide, cuneate below into the petiole. **Inflorescence** a loose, subsecund, simultaneously several-flowered raceme, to 13 cm long including the peduncle 4-5 cm long; spathe ca. 0.5 cm long; floral bracts tubular, 3-4 mm long; pedicels 3-4 mm long; ovary 2-3 mm long; sepals white, bright orange above the middle, glabrous externally, densely short-pubescent within above the middle, the dorsal sepal oblong, obtuse, 10 mm long, 2 mm wide, connate to the lateral sepals for 5 mm into a cylindrical tube, slightly constricted near the middle, the lateral sepals 10 mm long, 2 mm wide, reflexed beyond the orifice; **petals** white, oblong, obtuse, 3.5 long, 1.5 mm wide, 1-veined; **lip** white, oblong, trilobed, arcuate, 4 mm long, 1.25

mm wide, with tall, erect, rounded lobes near the middle, with the anterior margins subverrucose, extending onto the apical third, the apex subacute, the disc shallowly concave, the base truncate, hinged to the tip of the column-foot; **column** white with purple spots, semiterete, 2.5 mm long, the anther and stigma subapical.

ECUADOR: **Azuay**: Santa Isabella, alt. 1500 m, collected by A. Hirtz, flowered in cultivation, 19 Mar. 1979, *C. Luer 4039* (Holotype: SEL).

This species, apparently endemic and rare in southern Ecuador, is closely related to the variable *Physosiphon emarginatus* (Ruiz & Pav.) Lindl., which is common and widely distributed within Mexico and Guatemala, but rare in the Andes as far south as Colombia and Peru. It is distinguished from the latter by broader leaves about as long as the ramicauls; a dense, brush-like pubescence on the inner surfaces of the sepals; and the smooth, bicarinate, apical lobe of the lip.

Physosiphon emarginatus (Ruiz & Pav.) Lindl., Edwards's Bot. Reg. 21, sub. t. 1797, 1836. Fig. 3, 4.

Bas.: *Epidendrum emarginatum* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1:247, 1798, non *Epidendrum emarginatum* Sessé & Moc., Fl. Mexic., 2: 202, 1894.

Ety.: From the Latin *emarginatus*, "emarginate," referring to the tip of the leaf.

Syn.: *Pleurothallis emarginata* (Ruiz & Pav.) Lindl., Gen. Sp. Orch. 6, [Apr.?] 1830.

Syn.: *Humboldtia emarginata* (Ruiz & Pav.) Lindl., Gen. Sp. Orch. 6, [Apr.?] 1830, in synon., not Kuntze 1891.

Syn.: *Stelis tubata* G.Lodd., Bot. Cab. 17(161): t. 1601 [Sept.] 1830, in synon., not Kuntze 1891.

Ety.: From the Latin *tubatus*, "tube-shaped," referring to the sepals connate into a tube.

Syn.: *Physosiphon loddigesii* Lindl., Gen. Sp. Orch. 6, [Apr.?] 1830, in synon., not Kuntze 1891.

Syn.: *Physosiphon loddigesii* Lindl., Edwards's Bot. Reg. 21: sub t. 1797, 1835.

Ety.: Named for George Loddiges who illustrated and described the species.

Syn.: *Physosiphon carinatus* Lindl., Edwards's Bot. Reg. 24: misc. 72, 1838.

Ety.: From the Latin *carinatus*, "carinate," referring to the sepals.

Syn.: *Pleurothallis tubata* G.Lodd. ex Steud., *nomen nudum*, Nomencl. Bot. ed. 2: 356, 1841.

Syn.: *Physosiphon ochraceus* A.Rich. & Galeotti, Ann. Sci. Nat. Bot. 3(3): 17, 1845.

Ety.: From the Latin *ochraceus*, "ochre," referring to the yellowish color of the flowers.

Syn.: *Physosiphon tubatus* (G.Lodd.) Rchb.f., Ann. Bot. Syst. 6(2): 188, 1861.

Syn.: *Physosiphon guatemalensis* Rolfe, Bull. Misc. Inform. Kew 197, 1891.

Ety.: Named for Guatemala, country where the species was collected.

Syn.: *Physosiphon lindleyi* Rolfe, Bull. Misc. Inform. Kew 61, 1893.

Ety.: Named for John Lindley, most prominent English orchidologist.

Syn.: *Physosiphon moorei* hort. Kew Hand List Orch. Pl. ed. 1, 189, 1896.

Ety.: Named for F.W. Moore of the Royal Botanic Garden at Glasnevin, Ireland.

Syn.: *Stelis tacanensis* Solano & Soto Arenas, Icon. Orch. (Mex.) 5-6: t. 693, 2003.

Ety.: Named for the area near Volcán Tacana where the specimen was collected.

Syn.: *Specklinia tubata* (Lodd.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 103: 308, 2005.

Plant small to medium in size, epiphytic, caespitose; roots slender; ramicauls slender, erect, 2-6 cm long, mostly concealed by 2-3 imbricating, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical to elliptical, subacute to obtuse, 4-14 cm long including a petiole 1-1.5 cm long, 1.5-2.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a subdense to lax, secund, simultaneously several- to many-flowered raceme, 8-30 cm long including the peduncle 3-4 cm long; borne near the apex of the ramicaul, with a spathe 0.5-1 cm long; floral bracts tubular, 3-5 mm long; pedicels 3-4 mm long; ovary 3 mm long; sepals white, pale green, yellow or orange, glabrous, connate half or more than half the length into a sepaline tube, more or less constricted above the middle, the dorsal sepal 6-20 mm long, 1-2 mm wide, faintly 3-veined, the apex subacute, minutely apiculate, more or less recurved, the lateral sepals similar, 6-20 mm long (most commonly ca. 10 mm long), 1-2 mm wide; **petals** translucent, oblong-obovate, truncate to broadly obtuse, 1.25-1.5 long, 0.6-1 mm wide, 1-veined, sometimes with irregular margins; **lip** green, suffused with purple, elliptical-trilobed, 1.75-2.5 mm long, 0.5-1.25 mm wide, the apical lobe oblong, rounded at the apex, minutely to coarsely verrucose, the lateral lobes erect, near the middle, broadly rounded, the anterior margins thickened or with a distinct callus, the disc shallowly concave, the base truncate, hinged to the tip of the column-foot; **column** semiterete, low-winged above the middle, 2-2.5 mm long, the anther and stigma ventral.

PERU: **Junín**: near Huasa Huasi, fide Schweinfurth; **Huánuco**: fide Schltr., ca. 1780, *Pavón 595* (Holotype of *Epidendrum emarginatum*: W; isotype: K), C. Luer illustr. 19015.
Representative collecions:
COLOMBIA: without collection data, *F.C. Lehmann 4108* (G).
MEXICO: **Vera Cruz**: Jalapa, 1828, *Deppe s.n.* (holotype of *Stelis tubata*: W); near Sorocola, May 1829, *Schiede & Deppe 10* (holotype of *Physosiphon carinatus*: W); lectotype: *P. loddigesii*, Pfeiffer, Nom. Bot. 2: 705, 1873; Mirador, 1838, *J. Linden 24* (K); Orizaba, 26 Nov. 1866, *M. Bourgeau 3371* (K, LE, P); Orizaba, 1904, *C.A. Purpus s.n.* (BR); Jalapa, *Leibold 44* (W); Orizaba, 1853, *Fred. Müller 1417* (LE); Orizaba, 26 Nov. 1866, *M. Bourgeau 3371* (K, LE, P); Jalapa, alt. 4,000 ft., 1 Apr. 1899, *C.G. Pringle 8120* (BR, K, LE, M, US, W); Mirador, alt. ca. 1000 m, Sept. 1906, *H. Ross 766* (M); Volcán Perote, near Bandervilla, alt. 1800 m, 15 June 1935, *Juan G. 4720* (US); Zacuapan, July 1906, *C.A. Purpus 2132* (US); near Zacuapan, alt. 900 m, 2 June 1932, *O. Nagel 2666* (US). **Uruapan**, alt. 4,000 ft., Galeotti 5223 (W). **Oaxaca**: Oaxaca, May 1940, "macrostachya," *H. Galeotti 5076* (BR, K, W); Oaxaca, alt. 6,000 ft., *H. Galeotti 5838* (BR); Oaxaca, alt. 5,000 ft., *H. Galeotti 5839* (holotype of *Phy. ochracea*: BR); near San Andrés Teotilalpan, alt. 650 m, 1 July 1939, *R.E. Schultes 770* (BR, K, LE, US). **Michoacan**: Uruapan, Tancitaro, alt. 1950 m, 14 Nov. 1930, *G.B. Hinton et al. 15683* (W); Sierra Naranjillo, Coalcoman, alt. 1240 m, 25 Nov. 1938, *G.B. Hinton 12674* (K). **Morelia**: near Cuernavaca, alt. 2000 m, 18 June 1936, *Juan G. 2675* (US). **Guerrero**: west of Omiltemí, alt. 1700 m, 21 Jan. 1932, *Juan G. 928* (US). **Chiapas**: near Chiapas, alt. 4,500 ft., *J. Linden 1234* (K; W); Mt. Ovando, alt. 1250-2370 m, July 1938, *E. Matuda 2551* (K, US); East of Comitán, alt. 1500 m, 15 Feb. 1935, *O. Nagel 4451* (US); East of Comitán, alt. 1500 m, 6 July 1936, *O. Nagel 5659* (US); Yola, cult. U. Calif. Berk., 57.656-1, 24 Feb. 1962, *R. Alava s.n.* (AMES, K, MO, UC, US); Rt. 190 east of Teopisca, 12 June 1960, *R.M. King 2856* (US); 8 Km north of Temascaltepec, 21 Aug. 1959, *R.L. Dressler 2557* (US); SW of Autlán, alt. 1300-1600 m, 16 Nov. 1952, *R. McVaugh 14191* (US); Mt. St. Nicolas, 8 Aug. 1932, alt. 2200 m, *Juan G. & O. Nagel 1161* (US); Uruapan, Tancitaro, alt. 1850 m, 11 Nov. 1940, *G.B. Hinton 15670* (K, US); Venustiano Carranea, between Aguacatenango and Pinola Las Rosas, alt. 5,600 ft., 15 July 1966, *D.E. Breedlove 14542* (US); Uruapan, Tancitaro, alt. 1850 m, 11 Nov. 1940, *G.B. Hinton 15670* (K, US).
GUATEMALA: without collection data, cultivated at Glasnevin, from F.W. Moore, June 1890, 1891, *Rolfe s.n.* (holotype of *Physosiphon guatemalensis*: K); Dept. Ouichi, alt. 1800 m, 7 June 1884, *F.C. Lehmann 1551* (K); between Santa Rosa and Jalapa, alt. 1500 m, July 1882, *F.C. Lehmann 1295* (K); Santa Rosa, Volcán Jumay, alt. 2000 m, Apr. 1993, *Heyde & Lux 4620* (BR, K, M, US); Quiché, Cunén, alt. 2000 m, May 1992, *Heyde & Lux 3490* (BR, K, M, US); Sacatepéquez, Volcán de Agua, alt. 1300-2100 m, 4 Apr. 1989, *H. Förtner 2230* (M).

This species is frequent and extremely variable in southern Mexico and Guatemala, but rare in the Andes of Colombia and Peru. It is characterized by a relatively stout ramicaul that is shorter than the narrowly elliptical, petiolate leaf it bears. The usually many-flowered, loose raceme, borne a short distance below the abscission layer, surpasses the leaf. The sepals are connate above the middle into a tube that is constricted above the middle with the apices free. The petals are thin, single-veined, and more or less obovate and irregular at the apex. The lip is oblong with the sides broadened and erect above the middle, each with an irregular callus. The apex is obtuse and variably verrucose and denticulate. The column is semiterete and about as long as the lip.

The first recorded collection of this species was made late in the eighteenth century by Ruiz, and published by Ruiz and Pavón in 1798 as *Epidendrum emarginatum*. Probably because the specimens deposited were in an advanced state of fructification, they had been passed over for over two centuries as indeterminate. In *Orchids of Peru*, Schweinfurth dismissed it as "an obscure species." Ruiz apparently had intended to describe the collection in *Humboldtia*, the genus to which he attributed species known today as *Stelis*. Superficially, the collection does indeed appear to be similar to a species of *Stelis*. The sepals were described as being deeply connate to above the middle with the apices free. Lindley accordingly placed it in his genus *Physosiphon*.

Today, most of the flowers of the Ruiz collection are largely disintegrated, but portions remain at the summit of dehiscing capsules. One of the capsules with remnants of a flower has been hydrated, and both petals and the lip are found well

preserved. They are the same as the petals and lip of Mexican and Guatemalan collections known as *Physosiphon tubatus* (G.Lodd.) Rchb.f. Were it not for the fact that *Epidendrum emarginatum* Ruiz & Pav. was collected in Peru, there would be no doubt that the two concepts represent the same species, but in spite of the distance, they are too similar not to be presumed to represent the same species.

Several extremes of variations of this species have been recognized, but far too many intermediates exist to try to maintain them all. Rolfe described as *Physosiphon lindleyi* Rolfe, a clone with larger, more colorful flowers on a shorter raceme. Some populations produce flowers four times the dimensions of those of others, which create distinctly different appearances. Perhaps the extremes should be recognized, because it is doubtful that they utilize the same pollinators. The larger, more colorful flowers may be pollinated by hummingbirds, while the small, white, tubular flowers possibly attract nocturnal moths.

PHYSOTHALLIS

Physothallis Garay, Svensk Bot. Tidskr. 47: 199, 1953.

Type: *Physothallis harlingii* Garay.

Ety.: A combination of the generic names *Physosiphon* and *Pleurothallis*, alluding to a similarity to the two genera. From the Greek *physosiphon*, "a bladder-like tube," referring to the sepaline tube, and from the Greek *Pleurothallis*, "rib-like branches," referring to the ramicauls.

Syn.: *Pleurothallis* subgen. *Physothallis* (Garay) Luer.

This genus of two coarse terrestrial species is characterized by stout ramicauls shorter than the leaves; an elongated, multiflowered raceme; the dorsal sepal deeply connate to the lateral sepals; small petals; a small, thick lip; and a semiterete or shallowly winged column with two pollinia.

Physothallis cylindrica Luer, Selbyana 3: 224, 1976. Fig. 5.

Ety.: From the Latin *cylindricus*, "cylindrical," referring to the tubular flowers.

Syn.: *Pleurothallis cylindrica* (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 53, 1986.

Plant medium in size, terrestrial, caespitose; roots coarse; ramicauls stout, erect, 5-18 cm long, enclosed by a tubular sheath from below the middle and another 1-2 sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, obovate, obtuse to rounded at the apex, 5-14 cm long, 2-3.5 cm wide, cuneate below into the subpetiolate or sessile base. **Inflorescence** a loose, successively several-flowered raceme with several, erect flowers open simultaneously, to 50 cm long including the peduncle 20-30 cm long; spathe ca. 0.5 cm long; floral bracts 2-3 mm long; pedicels 5 mm long; ovary 4-5 mm long; **sepals** purple, glabrous, fleshy, deeply connate to near the thickened apices into a cylindrical, slightly sigmoid tube, 10-12 mm long, connate 8-9 mm into a lamina 10 mm wide expanded; **petals** obovate, translucent white, suffused with red at the rounded apex, 2.5 long, 1 mm wide, 1-veined; **lip** pale green, suffused with red-purple, thick, obovate-oblong, 3 mm long, 1 mm wide, with the margins erect and thickened, shallowly sulcate centrally, the apex rounded, the base truncate, hinged to the tip of the column-foot; **column** spotted with purple, semiterete, 2.5 mm long, the anther and stigma ventral, the foot 1 mm long.

ECUADOR: **Loja**: terrestrial on roadside hills north of Loja, alt. ca. 2000 m, 5 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1538* (Holotype: SEL); terrestrial, Argelia, alt. 2300 m, 5 June 1946, *R. Espinosa 628* (AMES, LOJA); terrestrial on road cut near El Cisne, alt. 2350 m, 26 Feb. 1986, *C. Luer, J. Luer & A. Embree 12040* (MO); rocky slopes west of Catamayo, alt. 2250 m, 26 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16170* (MO).

This terrestrial species is uncommon on high, scrubby slopes in southern Ecuador. It grows on mostly unshaded, hard, rocky soil, in a habitat similar to that of *Physothallis harlingii* Garay. The relatively large, thick leaves are obovate with round apices. A tall, successively flowering raceme produces erect, tubular flowers with deeply connate sepals that part only near their apices.

Physothallis harlingii Garay, Svensk Bot. Tidskr. 47: 199, 1953. Fig. 6.

Ety.: Named for Gunnar Harling of Göteborg, Sweden, who collected this species.

Syn.: *Pleurothallis neoharlingii* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 53, 1986.

Plant medium in size, terrestrial, shortly repent, the rhizome thick, ca. 0.5 cm long between ramicauls; roots coarse; ramicauls stout, swollen at the base, erect, 2-9 cm long, enclosed by a tubular sheath from below the middle and another 1-2 sheaths at the base. **Leaf** thickly coriaceous, elliptical, subacute, obtuse to rounded at the apex, 3.5-8 cm long, 1.5-3 cm wide, cuneate below into the subpetiolate base. **Inflorescence** a loose, subflexuous, successively several-flowered raceme, to 70 cm long including the peduncle 10-40 cm long; spathe ca. 0.5 cm long; floral bracts tubular, 4 mm long; pedicels 5 mm long; ovary 3 mm long; **sepals** yellow-green, suffused with red, glabrous, fleshy, thickened at the apices, the dorsal sepal oblong, subacute, 8 mm long, 2 mm wide, connate to the lateral sepals for 5 mm into a lamina 10 mm wide espanded, the lateral sepals 8 mm long, 3 mm wide, connate basally for 1-2 mm; **petals** white, oblong, obtuse, thick at the apex, 2.25 long, 1.25 mm wide, 1-veined; **lip** green, thick, ovate, obscurely trilobed, 3 mm long, 2 mm wide, with the margins erect and broadly rounded lobes below the middle, with thick intramarginal calli, the apex rounded, the disc shallowly concave, the base truncate, hinged to the tip of the column-foot; **column** semiterete, 2 mm long, the anther and stigma ventral, the foot 2 mm long.

ECUADOR: **Azuay**: mountain slopes, alt. 3000 m, without date recorded, *G. Harling 838* (Holotype: S); terrestrial on slopes near Cuenca, alt. 7,000-9,000 ft., 12 Aug. 1878, *F.C. Lehmann s.n.* (W); *C. Luer 413* (SEL); between Cuenca and Loja, shrubby slopes, alt. 2700 m, 18 June 1979, *B. Løjtnant & U. Molau 15122* (AAU, GB); southeast of Sigsig, alt. 2800 m, 6 Mar. 1981, *C. Luer 6111* (SEL); terretrial in scrubby forest south of Cuenca, alt. 2800 m, 20 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16055* (MO); east of Cuenca, above Cumbe, alt. 3000 m, 6 Mar. 2001, *C. Luer, J. Luer, A. Hirtz, E. Sánchez & L. Suin 19784* (MO).

This species occurs relatively frequently on high, scrubby slopes in southern Ecuador. It is a coarse plant with thick, short-stemmed leaves borne by a thick rhizome that clings to the mostly unshaded, hard, rocky soil. A tall, successively flowering raceme produces the flowers erect with the lateral sepals parted to near the base, and with the dorsal and lateral sepals deeply connate with the three, thick apices pointing upward.

PSEUDOCTOMERIA

Pseudoctomeria Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 219, 1925.

Ety.: From the Greek *pseudo-*, "false," and the genus *Octomeria* R.Br., referring to the vegetative and floral differences between the two.

Type: *Pseudoctomeria lentiginosa* (F.Lehm. & Kraenzl.) Kraenzl.

Syn.: *Pleurothallis* subgen. *Pseudoctomeria* (Kraenzl.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 67, 1986.

A genus with one species distinguished by fleshy, verrucose sepals with the laterals connate; membranous petals dilated on the labellar margin; an oblong, channeled lip; and a winged, denticulate column with a ventral anther.

Pseudoctomeria lentiginosa (F.Lehm. & Kraenzl.) Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 220, 1925.

Bas.: *Pleurothallis lentiginosa* F.Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 446, 1899.

Ety.: From the Latin *lentiginosus*, "covered with freckles," referring to the verrucose sepals.

Syn.: *Pseudoctomeria lentiginosa* (F.Lehm. & Kraenzl.) Rolfe, Bull. Misc. Inform. Kew 116, 1925, nom. superf.

Syn.: *Physosiphon lentiginosus* (F.Lehm. & Kraenzl.) Brieger, in Schlechter *Orchideen*, 7(2528): 436, 1975.

Plant small, epiphytic, densely fasciculate-caespitose; roots slender, numerous, fasciculate. Ramicauls stout, ascending, terete, 3-4 cm long, enclosed by 4-5 imbricating, tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to acute, 3-4.5 cm long including the petiole 5-8 mm long, 0.9-1 cm wide, cuneate below into the petiole. **Inflorescence** a fascicle of successive, single-flowered peduncles, 3-4

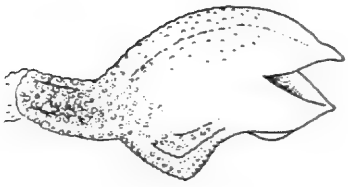
mm long, emerging from near the apex of the ramicaul; floral bract tubular, 5 mm long; pedicel 4-8 mm long, papillose; ovary 1.5 mm long, papillose; **sepals** light yellow, more or less fleshy, verrucose externally, smooth within, the dorsal sepal ovate, concave, subacute to obtuse, 5.5 mm long, 3 mm wide, 3-veined, connate above the middle to the laterals, forming a thick, cylindrical tube, the lateral sepals completely connate into an elliptical, concave, obtuse synsepal, 4.5 mm long, 3.5 mm wide, 4-veined, forming a broad, obtuse mentum with the column-foot; **petals** yellow, orange toward the base, obliquely broadly obovate, obtuse, entire, 2.5 mm long, 1.75 mm wide, the base unguiculate; **lip** white, oblong, truncate, 2.5 mm long, 1 mm wide, with a longitudinal pair of calli within the margins, the base rounded, hinged to the column-foot; **column** white, stout, semiterete, longitudinally winged, toothed at the apex, 2 mm long, anther and stigma ventral, pollinia 2, the foot thick, about as long as the column.

COSTA RICA: **Cartago**: above San Isidro, Volcán Irazú, alt. 2000 m, 27 Dec. 1881, *F.C. Lehmann 1750* (Holotype destroyed at B; Lectotype: AMES; Isolectotype: US); above San Isidro, alt. 1600 m, 29 Dec. 1881, *F.C. Lehmann 1064* (BR, G); same area, flowered in cultivation 14 Dec. 1979, collected by *L.D. Gómez 7202* (SEL), C. Luer illustr. 4829.

This small species, apparently endemic in Costa Rica, is without close relatives. It is characterized by the densely fasciculated ramicauls; petiolate leaves about equally long; a fascicle of short, single-flowered peduncles; papillose ovaries; and fleshy, verrucose sepals connate two-thirds the length into a broadly cylindrical tube. The petals are broadly obovate, and the lip is oblong with a longitudinal pair of calli that fit within the longitudinal wings of the column.

Kränzlin saw the collections from Costa Rica by Lehmann with the questionable identification of *Octomeria* R.Br. He recognized the distinctive morphology of the species for which he proposed the genus *Pseudoctomeria*.

Illustration: Monogr. Syst. Bot. Missouri Bot. Gard. 20 (Icones-III): 69, 1986, Plate 34.



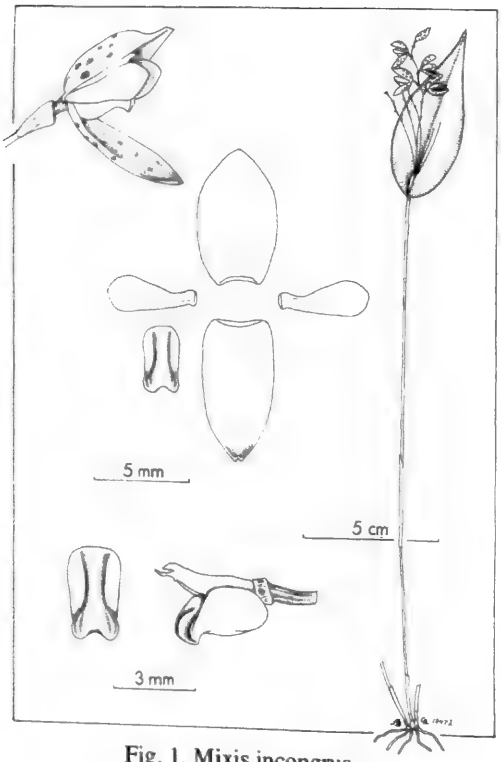


Fig. 1. Mixis incongrua

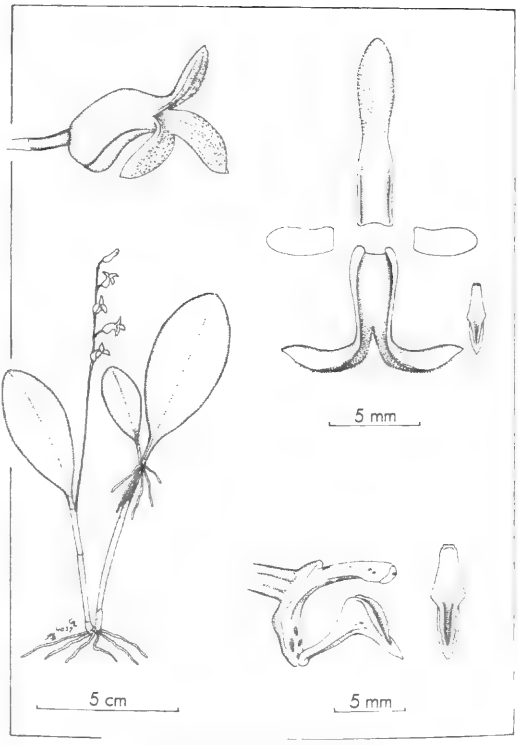


Fig. 2. Physosiphon asperrimum

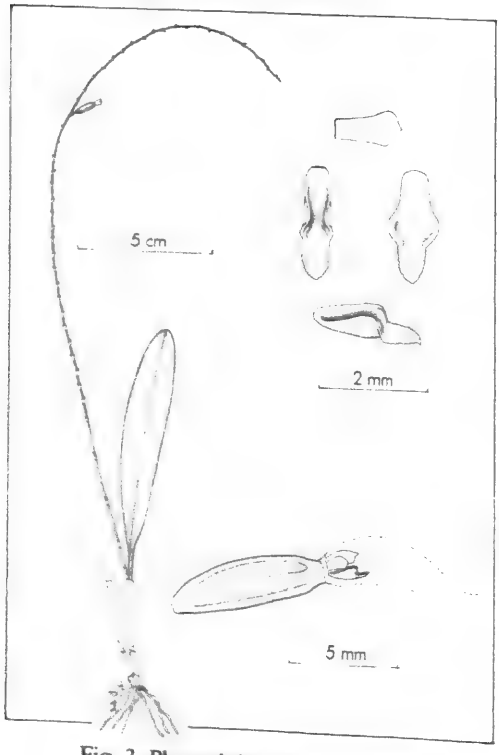


Fig. 3. Physosiphon emarginatum
Holotype

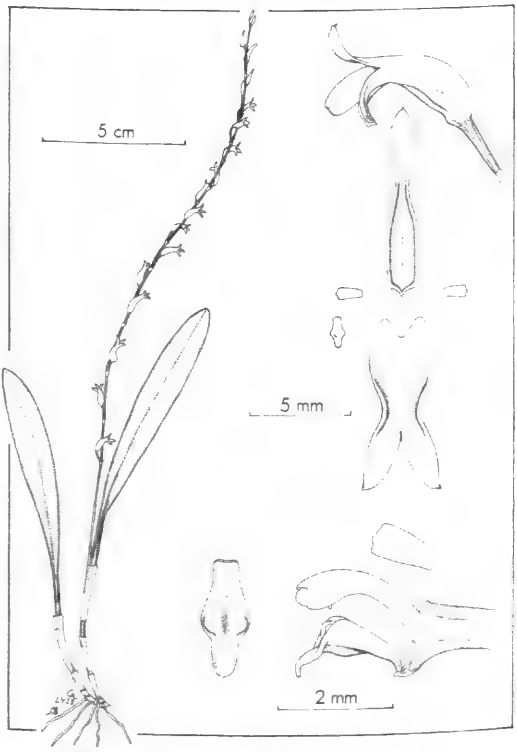


Fig. 4. Physosiphon emarginatum
Common variation

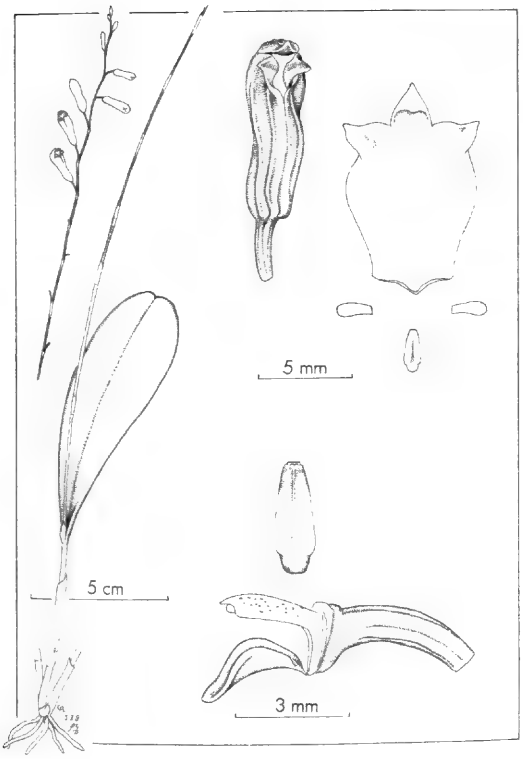


Fig. 5. Physothallis cylindrica

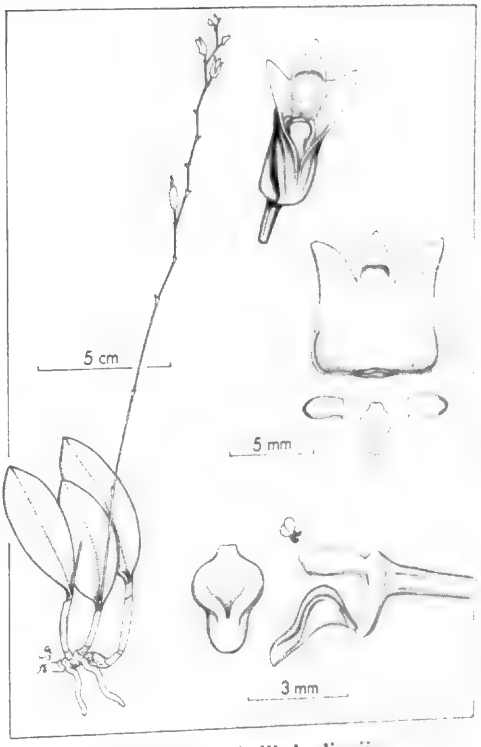


Fig. 6. Physothallis harlingii

ADDENDA: MISCELLANEOUS NEW GENERA, NEW SPECIES AND NEW COMBINATIONS

1. New Genera

Effusiella gen. nov. Luer

Type: *Pleurothallis amparoana* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 23, 1923.
Syn.: *Pleurothallis* subgenus *Effusia* Luer.

Inflorescencia racemosa. Sepala saepe pubescentia, sepalo dorsali liberi, lateralibus connatis vel semiconnatis. Labellum distincte vel obscure unguiculatum, obscure lobatum, disco bicarinato. Columna semiteres, polinnia duobus.

Species of this polymorphic genus were treated in *Pleurothallis* R.Br. subgenus *Effusia* Luer in *Icones Pleurothallidinarum*-XX. They were transferred en masse to *Stelis* Sw. (Pridgeon & M.W.Chase, 2001). Morphologically, some species are extremely similar to some species of the equally polymorphic genus *Pabstiella* Brieger & Senghas, the genera to which they are assigned relying on interpretation of subtle floral characters and distribution. Were *Effusiella* and *Pabstiella* not separated by today's DNA analyses, the two might constitute a single genus.

Forty species of *Effusiella* are identified in Central America and the Andean countries of South America, only one species [*Effusiella imraei* (Lindl.) Luer] also occurring in the Antilles.

Effusiella amparoana (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis amparoana* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 23, 1923.
Effusiella brenneri (Luer) Luer, comb. nov.
Bas.: *Pleurothallis brenneri* Luer, Selbyana 3(1-2): 64, 1976.
Effusiella chlorina (Luer) Luer, comb. nov.
Bas.: *Pleurothallis chlorina* Luer, Phytologia 47(2): 75, 1980.
Effusiella cocornaënsis (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis cocornaënsis* Luer & R.Escobar, Orquideología 20: 45, 1996.
Effusiella convallaria (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis convallaria* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 185, 1923.
Effusiella convoluta (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis convoluta* Lindl., Ann. Mag. Nat. Hist. ser. 1, 15: 107, 1845.
Effusiella cypripedioides (Luer) Luer, comb. nov.
Bas.: *Pleurothallis cypripedioides* Luer, Selbyana 1(1): 70, 1975.
Effusiella dilatata (C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis dilatata* C.Schweinf., Bot. Mus. Leafl. Harvard Univ. 10: 177, 1942.
Effusiella diminuta (Luer) Luer, comb. nov.
Bas.: *Pleurothallis diminuta* Luer, Phytologia 49(3): 204, 1981.
Effusiella erucosa (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis erucosa* Luer & R.Escobar, Orquideología 21(1): 88, 1998.
Effusiella flexuosa (Poepp. & Endl.) Luer, comb. nov.
Bas.: *Pleurothallis flexuosa* (Poepp. & Endl.) Lindl., Edwards's Bot. Reg. 28: Misc. 69, 1842.
Effusiella fornicata (Luer) Luer, comb. nov.
Bas.: *Pleurothallis fornicata* Luer, Lindleyana 11(3): 160, 1996.
Effusiella immersa (Linden & Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis immersa* Linden & Rchb.f., Bonplandia 3(15-6): 224, 1855.
Effusiella imraei (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis imraei* Lindl., Fol. Orchid. *Pleurothallis* 9, 1859.
Effusiella jalapensis (Kraenzl.) Luer, comb. nov.
Bas.: *Pleurothallis jalapensis* (Kraenzl.) Garay, Bot. Mus. Leafl. Harvard Univ. 30(3): (58)192, 1986.
Effusiella lehmanneptis (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis lehmanneptis* Luer & R.Escobar, Orquideología 21: 100, 1998.
Effusiella listerophora (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis listerophora* Schltr., Repert. Spec. Nov. Regni Veg. 3(33-34): 107, 1906.

Effusiella longispicata (L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis longispicata* L.O.Williams, Bot. Mus. Leafl. Harvard Univ. 12(7): 240, 1946.
Effusiella niesseniae (Luer) Luer, comb. nov.
Bas.: *Pleurothallis niesseniae* Luer, Orquideología 22(1): 59, 2001.
Effusiella nigriflora (L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis nigriflora* L.O.Williams, Amer. Orchid Soc. Bull. 11(5): 168, 1942.
Effusiella nonresupinata (Solano & Soto Areanas) Luer, comb. nov.
Bas.: *Stelis nonresupinata* Solano & Soto Arenas, Icon. Orchid. Mex. 5-6: 688, 2003.
Syn.: *Pleurothallis ignota* Luer, Rev. Soc. Bol. Bov. 4(1); 16, 2003.
Effusiella oestlundiana (L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis oestlundiana* L.O.Williams, Bot. Mus. Leafl. Harvard Univ. 12(7): 243, 1946.
Effusiella ornata (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis ornata* Rchb.f., Gart. Zeitung (Berlin) 1: 106, 1882.
Effusiella petiolaris (Luer) Luer, comb. nov.
Bas.: *Pleurothallis petiolaris* Luer, Orquideología 20: 220, 1996.
Effusiella platystylis (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis platystylis* Schltr., Repert. Spec. Nov. Regni Veg. 10(257-259): 395, 1912.
Effusiella prolixa (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis prolixa* Luer & Hirtz, Lindleyana 11(3): 179, 1996.
Effusiella pseudocheila (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis pseudocheila* Luer & R.Escobar, Orquideología 16(2): 173, 1984.
Effusiella resupinata (Ames) Luer, comb. nov.
Bas.: *Pleurothallis resupinata* Ames, Orchidaceae 2: 272, 1908.
Effusiella retusa (La Llave) Luer, comb. nov.
Bas.: *Pleurothallis retusa* (La Llave & Lex.) Lindl., Edwards's Bot. Reg. 28: Misc. 81, 1842.
Effusiella rostratissima (Luer & J.J.Portilla) Luer, comb. nov.
Bas.: *Pleurothallis rostratissima* Luer & J.J.Portilla, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 108, 2002.
Effusiella scabrata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis scabrata* Lindl., Fol. Orchid. *Pleurothallis* 30(n. 176), 1859.
Effusiella tarantula (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis tarantula* Luer & Hirtz, Lindleyana 11(3): 186, 1996.
Effusiella thomasiae (Luer) Luer, comb. nov.
Bas.: *Pleurothallis thomasiae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 84, 2000, as *P. thomasii*.
Effusiella tortilis (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis tortilis* Luer & R.Escobar, Orquideología 14(2): 180, 1981.
Effusiella trichostoma (Luer) Luer, comb. nov.
Bas.: *Pleurothallis trichostoma* Luer, Selbyana 5(2): 185, 1979.
Effusiella trulla (Rchb.f. & Warsz.) Luer, comb. nov.
Bas.: *Pleurothallis trulla* Rchb.f. & Warsz., Bonplandia 2: 114, 1854.
Effusiella vaginata (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis vaginata* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 197, 1923.
Effusiella villosa (Knowles & Westc.) Luer, comb. nov.
Bas.: *Pleurothallis villosa* Knowles & Westc., Fl. Cab. 2: 78, 1838.
Effusiella ximenae (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis ximenae* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 238, 2004.

Niphantha Luer, gen. nov.
Ety.: From the Greek *niphantha*, "snow flake-flower," referring to the frosted appearance of the pubescent sepals.
Type: *Pleurothallis gelida* Lindl., Edwards's Bot. Reg. 27: Misc. 91, 1841.

The genus *Niphantha* is distinguished from *Effusiella* Luer, with which it had been associated in *Pleurothallis* subgenus *Effusia* (Luer, 2000), by a large, strongly petiolate leaf; a comparatively large spathe; obcuneate lip; lateral sepals free nearly to the base; and a semiterete, longitudinally winged column with a pair of pollinia. A DNA analysis (unpub. comm.) isolates it from *Effusiella*.

Two species are included.

Niphantha gelida (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis gelida* Lindl., Edwards's Bot. Reg. 27: Misc. 91, 1841.
Syn.: *Stelis gelida* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 263, 2001.

Niphantha pidax (Luer) Luer, comb. nov.
Bas.: *Pleurothallis pidax* Luer, Selbyana 5(2): 174, 1979.

2. Miscellaneous New Species

Effusiella hamiltonii Luer, sp. nov. Fig. 1.

Ety.: Named in honor of A.C. Hamilton, co-collector of this species.

Planta grandis racemo coaetaneo multifloro folio sessile multilongiore, sepalis acutis intus pubescentibus lateralibus semi connatis, petalis acutis, et labello ovato acuto unguiculato distinguitur.

Plant large, presumably epiphytic, presumably caespitose; roots unknown. Ramicauls stout, erect, more than 12 cm long, undoubtedly with tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, 14 cm long, 6.5 cm wide, cuneate below into the sessile base. **Inflorescence** a strict, erect, loose, distichous, simultaneously many-flowered raceme, up to 28 cm or more long including the peduncle ca. 10 cm long, subtended by a broad spathe ca. 2 cm long; floral bracts tubular, oblique, 5-7 mm long; pedicels 3-4 mm long; ovary 3 mm long; **sepals** (colors not noted), long-pubescent within, subcarinate, the dorsal sepal narrowly ovate, acute, 19 mm long, 4 mm wide, 3-veined, the lateral sepals narrowly ovate, acute, 19 mm long, 3.75 mm wide, 3-veined, connate 7 mm to near the middle and shallowly concave, with a basal mentum with the column-foot; **petals** elliptical, acute, entire, 9.5 mm long, 2.8 mm wide, subunguiculate toward the base; **lip** ovate, acute, arcuate, 7 mm long, 3.5 mm wide, the apex narrowly obtuse with a low, midline callus, the sides broadly rounded and erect in the middle third, unguiculate in the lower quarter, hinged to the column-foot; **column** semiterete, denticulate at the apex, 5 mm long, the foot 2 mm long, the anther, rostellum and stigma ventral.

PERU: **San Martín**: Dist. Huallaga, valley of Río Apisoncho, 30 km above Jucusbamba, alt. 3200 m, 5 Aug. 1965, *A.C. Hamilton & P.M. Holligan 1064* (Holotype: K; Isotype: AMES), C. Luer illustr. 16389.

This species was published in Systematics of *Pleurothallis* subgenus *Effusia* in *Icones Pleurothallidinarum-XX*, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 70, 2000. Due to an oversight, it was published with the citation of *Trichosalpinx hamiltonii* Luer instead of being described as a new species.

This species is known from a single collection made in 1965 at a high altitude in north central Peru. Unfortunately, the ramicaul has been broken off about 12 centimeters below the leaf, and no color notes are present. It is distinguished by a large, elliptical, sessile leaf far surpassed by a strict, distichous, simultaneously many-flowered raceme. The flowers are large and gaping with the sepals long-pubescent within. The petals are narrowly acute, and the lip is narrowly obtuse at the apex and unguiculate at the base with erect sides at the middle.

Effusiella scolnikiae Luer & Endara, sp. nov. Fig. 2.

Ety.: Named for Rosa Scolnik, who first collected this species.

Planta grandis caespitosa, racemo multifloro quam folio elliptico petiolato plus minusve aequilongo, sepalis ovatis concavis intus pubescentibus, petalis oblongis ad basim uncinatis marginibus tenuibus irregularibus, labello oblongo infra medium lobulato ad basim concavo ad pedem columnae articulato.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, slender, 25-30 cm long, with a close tubular sheath about the middle third, another below the middle, and another at the base. **Leaf** erect, coriaceous, elliptical, slightly acuminate, 11-17 cm long including the petiole 2-3 cm long, 2-4 cm wide dried, cuneate below into the petiole. **Inflorescence** a pair of erect, simultaneously multiflowered racemes, 18-20 cm long including the peduncle 3-5 cm long, with a spathe 12 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, 2.5 mm long; pedicels 2 mm long; ovary 1 mm long; **sepals** described as maroon, glabrous externally, pubescent within above the middle, the dorsal sepal elliptical, acute, concave, 4.5 mm long, 2 mm wide, 3-veined, free from the lateral sepals, the lateral sepals free but held forward as a concave synsepal, ovate, acute, 4.5 mm long, each 2 mm wide, 3-veined; **petals** membranous, oblong, obtuse, with thin, minutely irregularly jagged margins, 2 mm long, 0.8 mm wide, 3-veined, the base narrowed into an incurved, uncinate claw; **lip** thick, elliptical, with minutely irregular margins, rounded at the apex, 2.75 mm long, 1.2 mm wide, 3-veined, with a pair of irregularly rounded lobes above the lower quarter and continuous into a pair of low carinae on the middle third, the base with a circular cavity that accommodates the free tip of the column-foot, the under surface of the lip with a thick, shallowly cleft, longitudinal callus above the middle; **column** terete, 1 mm long, with the anther and stigma ventral, pollinia 2, naked, the foot curved with the tip free, articulated within the cavity at the base of the lip.

ECUADOR: **Pichincha**: between Chiriboga and Dos Ríos, terrestrial, alt. 950-1850 m, 4 Feb. 1949. *Rosa Scolnik 1620* (Holotype: AMES), C. Luer illustr. 21033.

This rare species is known from only a single collection along a road not far from Quito that has been thoroughly collected by every botanist ever to have visited Ecuador. The strange morphology of the floral parts seems most compatible with *Effusiella* Luer, being vaguely similar to *E. flexuosa* (Poepp. & Endl.) Luer.

The plant is large with tall ramicauls with distant, closely fitting, tubular sheaths, and the leaf is elliptical and petiolate. Two densely many-flowered, elongated racemes were produced by each of the ramicauls of the specimen. The sepals are ovate, acute and pubescent within with the laterals held forward as a synsepal. The petals with minutely jagged margins emerge with a curved claw to lie parallel to the column. A cavity at the base of the lip is articulated with the free tip of the column-foot. Above the lower quarter of the lip is a pair of short, erect lobes that merge into a pair of calli. The apex is thick and rounded, with a thick, cleft, longitudinal callus on the under surface.

Lepanthes cuatrecasasii Luer, sp. nov. Fig. 3.

Ety.: Named in honor of the late Dr. José Cuatrecasas, distinguished Spanish botanist, who collected this species.

Planta mediocris ramicaulibus crassis cum vaginibus atrantibus, racemo disticho folio ovato breviore, sepalo dorsali obtuso, sepalis lateralibus acutis, petalis transverse bilobis oblongis cum angulo marginali brevi inter se, laminis labelli oblongis apicibus columnam amplectentibus, appendice minuta.

Plant medium in size; roots slender. Ramicauls stout, erect, 6-11 cm long, enclosed by 6-9 dark, lepanthiform sheaths with microscopically echinate margins. **Leaf** erect, coriaceous, ovate, subacute, 2-3.5 cm long, 2-2.5 cm wide, the base cuneate to a petiole 5 mm long. **Inflorescence** a subcongested, successively several-flowered raceme up to 20 mm or more long, borne along the back of the leaf by a filiform peduncle up to 15 mm long; floral bracts 1 mm long; pedicels 1 mm long; ovary 2 mm long; **sepals** appear to have been either white or yellow, carinate, entire, the dorsal sepal broadly ovate, obtuse, 4.5 mm long, 3.5 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals ovate, oblique, acute, 5 mm long, 2.5 mm wide, 1-veined, connate 1.5 mm; **petals** glabrous, transversely bi-obed, 0.5 long, 4 mm wide, with a small angle-like lobe on the margin between the lobes, the lobes oblong with rounded ends; **lip** glabrous, bilaminate, the blades oblong, 2.25 mm long, with rounded ends, the apex embracing the apex of the column, the connectives broadly cuneate, the body broad, connate to the column above the base, the sinus acute with a small, triangular appendix; **column** terete, 2 mm long, the anther apical, the stigma ventral.

COLOMBIA: **Valle del Cauca**: western slopes of the central cordillera, branch of the Río Bugalagrande, Cuchilla de Barragán, alt. 3250 m, 12 Apr. 1946, *J. Cuatrecasas 20601* (Holotype: AMES), C. Luer illustr. 19287.

This species is apparently endemic in Central Cordillera of southern Colombia, where it was collected by Cuatrecasas. The species is characterized by stout ramicauls with dark sheaths, and an ovate leaf with a shorter, subcongested raceme of successive flowers. No color notes are present. The floral parts are glabrous. The dorsal sepal is obtuse while the laterals are acute and diverging. The lobes of the petals are oblong with a marginal angle between them. The blades of the lip are oblong with the apices embracing the column. The appendix is minute.

Pleurothallis davisii Luer & Endara, sp. nov. Fig. 4.

Ety.: Named for E.W. Davis, collector of this species.

Planta parva caespitosa, racemo multifloro quam folio ovato breviter petiolato plus minusve longiore, sepalo dorsali synsepaloque suborbicularibus, petalis labelloque late obovatis.

Plant small, epiphytic, caespitose; roots fine. **Ramicauls** erect, very slender, 1-3 cm long, with a close tubular sheath about the middle third, and another at the base. **Leaf** erect, coriaceous, ovate, acute, 3-4.8 cm long including the petiole ca. 0.5 cm long, 0.8-1 cm wide dried, cuneate below into the petiole. **Inflorescence** an erect, simultaneously multiflowered raceme, 5-8.5 cm long including the peduncle ca. 1 cm long, with a spathe 5-6 mm long, from near the apex of the ramicaul; floral bracts oblique, 2-2.5 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** purple-brown, glabrous, the dorsal sepal subor-

bicular, concave, 2.6 mm long, 2 mm wide, 3-veined, free from the synsepal, the lateral sepals connate into a similar suborbicular synsepal, obtuse, minutely biapiculate, 2.8 mm long, 2 mm wide, 2-veined; **petals** membranous, broadly obovate, obtuse, 1.2 mm long, 1 mm wide, 1-veined; **lip** broadly obovate, obtuse, 1.6 mm long, 1.8 mm wide, 3-veined, with the sides curved up in the natural position, the base truncate, connate to the end of the column-foot; **column** terete, 1 mm long, with the anther apical and the stigma subapical.

ECUADOR: **Napo**: between Archidona and Cotunda, alt. 800 m, 14 Dec. 1976, *E.W. Davis 474* (Holotype: AMES), C. Luer illustr. 21034.

This species, from a low altitude on the eastern slope of the Andes of central Ecuador, is without close relationships within the genus *Pleurothallis* R.Br. It is characterized by a small, caespitose habit; acute, ovate, petiolate leaves; a longer, congested, many-flowered raceme of small, bilabiate flowers; a concave dorsal sepal and synsepal; and broadly obovate, featureless petals and lip.

Restrepia fritillina Luer & V.N.M.Rao, sp. nov. Fig. 5.

Ety.: From the Latin *fritillus*, "like the black spots on white dice," referring to the sepals.

Inter species generis *Restrepiae* Lindl., sepalis niveis cum maculis bicoloratis, petalis proportione longissimis integris sine processibus, et labelli processibus paucis brevibusque distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 5-9 cm long, enclosed by 5-6 thin, whitish, loose, compressed, more or less imbricating sheaths, the lowermost sheaths more or less dotted with black. **Leaf** erect, coriaceous, solid purple beneath, ovate, acute, 3-9 cm long, 2.2-3 cm wide, the base broadly cuneate contracted into a twisted petiole 0.5 cm long. **Inflorescence** a solitary flower, produced successively in a fascicle rising up the back side of the leaf; peduncle slender, 4-5 cm long; floral bract thin, tubular, 7 mm long; pedicel stout, 3 mm long, with a short filament; ovary purple, 5 mm long; **sepals** snow white, the dorsal sepal more or less with a few purple spots, free, erect, narrowly ovate on the basal quarter, attenuated above, thickened near the apex, 30 mm long, 4 mm wide above the base, 5-veined, the lateral sepals with irregular dark purple spots, the larger spots with an orange center, connate to near the apex into a longitudinally concave, elliptical lamina, with the sides more or less slightly convex, 26 mm long, 10 mm wide expanded, multiple-veined, the apex subacute to obtuse, minutely bifid; **petals** translucent white, veined and more or less spotted with dark purple, narrowly linear-triangular, entire, attenuated above the basal fifth with the apex minimally clavate-thickened, 22 mm long, 1 mm wide at the base; **lip** white, variously spotted with dark purple, oblong, 10 mm long, 3.5 mm wide, the epichile oblong, slightly pandurate, microscopically verrucose with microscopically denticulate margins, the apex retuse-truncate, the hypochile subquadrate, concave with thin, erect margins, each side with a cluster of 3-4 erect, capillary processes ca. 1 mm long, the disc with a pair of low carinae extending forward from the base of the processes onto the epichile, the base subtruncate, connected to the column-foot by a rigid, cylindrical neck; **column** greenish white, slender, clavate, 7 mm long, the base pedestal-like with a pair of pubescent, rounded calli.

COLOMBIA: without collection data, obtained from Orquídeas del Valle, Cali, flowered in cultivation in Wilmington, Delaware, USA, June 2007, by *M. Rao 299* (Holotype: MO), C. Luer illustr. 21232.

This spectacular species from Colombia is distinguished from all others in the genus by snow white sepals with irregular, deep purple or black spots, the larger spots having orange centers. Vegetatively, the species is indistinguishable from the middle-sized majority with solid purple covering the back surface of the leaf. Medium sized flowers are borne about midway behind the leaf. The slightly clavate dorsal sepal is three centimeters long. The lateral sepals are connate into an elongated, longitudinally concave synsepal with the sides slightly convex. The petals are proportionately long and slender, slightly thickened toward the tip and completely smooth without marginal teeth. The lip is similar in outline to many others except for the hairlike processes that adorn the hypochiles of other species. Instead, in this species, three or four short processes spring from a common, broad base.

Stelis maduroi Luer & Sijm, sp. nov. Fig. 6.

Ety.: Named for Andres Maduro, in whose collection at Finca Dracula, this species was found.

Species haec *Stelidis embreei* Luer & Hirtz persimilis, sed sepalis lateralibus semiconnatis cum apicibus obtusis divergentibus differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by a tubular sheath, and another sheath at the base. **Leaf** erect, coriaceous, broadly elliptical, obtuse, 3.5 cm long including a petiole 0.5 cm long, the blade 1.5 cm wide, cuneate below into the petiole. **Inflorescence** an elongating, suberect, flexuous, lax, successively many-flowered raceme, with the flowers produced singly, up to 16 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5-3 mm long; pedicels 2 mm long; ovary 3-4 mm long; flowers gaping; **sepals** glabrous, dark red, the dorsal sepal convex, erect, transversely ovate, obtuse, 6 mm long, 8 mm wide, 5-veined, connate basally to the synsepal for 3 mm, the lateral sepals transversely ovate, oblique, broadly obtuse, 5 mm long, 5.5 mm wide, connate 3 mm into a shallowly concave, transverse synsepal with recurved margins, 5-6 mm long, 11 mm wide, 8-veined; **petals** dark red, semilunate, with the apex rounded, with broadly thickened margins, concave above the base, 1 mm long, 1.2 mm wide, 3-veined; **lip** dark red, more or less discoid, thick, 0.6 mm long, 1.5 mm wide, 1 mm deep, the anterior surface slightly concave below the thickened bar, the apex broadly rounded, the dorsum shallow with a single, microscopically pubescent, central callous, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

PANAMA: **Bocas del Toro**: obtained from Finca Dracula 7 Oct. 2001, cultivated in the Netherlands, Oct. 2006, *T. Sijm 220728* (Holotype: MO), C. Luer illustr. 21023.

This species is surprisingly similar to *Stelis embreei* Luer & Hirtz from the Andes of southeastern Ecuador. Instead of being completely connate into a concave, broadly ovoid synsepal, the lateral sepals of *S. maduroi* are semiconnate into a shallowly concave, transverse synsepal with diverging, obtuse apices.

Vegetatively, the two species are very similar with obtuse, elliptical leaves with shorter ramicauls, and a slowly lengthening raceme of successive, solitary flowers. The petals and lip are nearly identical.

These two species are an example of how tenuous the maintenance of sections of *Stelis* can be. By arbitrary definition based only on one variable key character, *Stelis embreei* probably belongs to section *Humboldtia* and *S. maduroi* belongs to section *Stelis*.

Trichosalpinx sipapoensis G.A.Romero & Luer, sp. nov. Fig. 7.

Ety.: Named for Cerro Sipapo in Venezuelan Amazonia where the species was collected.

Species haec *Trichosalpinge intricatae* (Lindl.) Luer affinis, sed habitu nonprolificanti minore, pedunculo proportione longiore, et racemo laxe bifloro differt.

Plant very small, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, non prolific, 5-11 mm long, enclosed by 2-3 closely fitting, microscopically ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, broadly elliptical, obtuse to rounded at the apex, 6-7 mm long including a petiole less than 1 mm long, 3.5-4 mm wide, broadly cuneate below to the petiole. **Inflorescence** an erect, distantly 2-flowered raceme, the flowers 3-4 mm apart, borne by a filiform peduncle 20-25 mm long, from near the apex of the ramicaul; floral bracts 1 mm long; pedicels 3-3.5 mm long; ovary 0.75 mm long; **sepals** translucent pale yellow, glabrous, subcarinate, the dorsal sepal ovate, concave, acute, long-acuminate, 3-4 mm long including the tail-like apex, 1.3 mm wide, 3-veined, free from the lateral sepals, the lateral sepals narrowly triangular, acute, acuminate, 3-4 mm long, 0.5-0.75 mm wide, 1-veined, connate 0.5 mm; **petals** translucent, elliptical, oblique, 1.5 mm long, 0.5 mm wide, faintly 1-veined, the apex subacute to obtuse; **lip** yellow, ovate-trilobed, 1.8 mm long, 1.2 mm wide, across the expanded lobes, the apical lobe narrowly ovate, narrowly rounded at the apex, with the lateral lobes below the middle, erect, obtuse to subacute, the disc with a small callus near the forward angle of each lobe, the base subunguiculate, hinged to the column-foot; **column** terete, 1 mm long, the anther subapical, the stigma ventral.

VENEZUELA: **Amazonas**: Mun. Autana, east slope of Marcigo Cuao-Sipapo, alt. 1546 m, 14 Sept. 2001, *G.A. Romero et al. 3029* (Holotype: VEN; Isotypes: AMES, TFAV, MO), C. Luer illustr. 20054.

This tiny species, apparently endemic in Amazonian Venezuela, is closely related to the common and variable *Trichosalpinx intricata* (Lindl.) Luer, but is distinguished by a smaller, nonprolific habit, and a distantly two-flowered raceme borne by a proportionately longer peduncle far above the minute, suborbicular leaves. All floral parts are similar to those of *T. intricata* but smaller.

Trisetella klingeri Luer, sp. nov. Fig. 8.

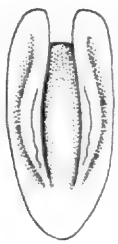
Ety.: Named for John Klinger of Roseburg, Oregon, who cultivates this species.

Inter species generis *Trisetellae* Luer foliis parvis incrassatis, sepalorum caudis brevibus crassissimis clavellatis, et labello elliptico bicristato differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, 5-7 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly linear, acute, narrowed below to the ramicaul, 20-25 mm long, 4 mm wide. **Inflorescence** a succession of single flowers borne in a congested few-flowered raceme by a slender, erect, nearly smooth peduncle 6-7.5 cm long, with a bract near the base, from low on the ramicaul; floral bracts 3 mm long; pedicel 4 mm long; ovary 3 mm long, subverrucose; **sepals** pale orange, suffused with brown, microscopically ciliate, the dorsal sepal 12 mm long, including a 1.5 mm thick, clavate tail 7 mm long, the blade ovate, obtuse, concave, 5 mm long, 5 mm wide, connate to the lateral sepals for 3 mm to form a sepaline cup, the lateral sepals, connate 12 mm into a concave, oblong, obtuse lamina 12 mm long, 9 mm wide expanded, without a remarkable mentum, the tails produced laterally, below and 1 mm from the apex, the tails yellow-green, stout, terete, clavate, 3 mm long, 1 mm thick; **petals** translucent, oblong, 3 mm long, 1 mm wide, the apex truncate, sharply tridentate; **lip** orange-brown, elliptical, obtuse, 3.3 mm long, 1.5 mm wide, the disc with a pair of erect, irregular, longitudinal calli on the middle third, the base cordate-cleft, hinged to the compressed apex of the column-foot; **column** semiterete, 3.5 mm long, the foot 1 mm long.

ECUADOR: without collection data, purchased from Ecuagenera by J. Klinger, flowered in cultivation in Roseburg, Oregon, May 2007, *C. Luer 21221* (Holotype: MO).

This recent export from Ecuagenera in Gualaceo, Ecuador, with short, thick sepaline tails, is most similar to *Trisetella sororia* Luer & Andreetta, but the tails of *T. klingeri* are thicker and more clavate. *Trisetella klingeri* is characterized by small, semiterete leaves and a much longer peduncle with a barely roughened surface. The flowers are pale orange with conspicuously thickened tails. The lateral sepals are deeply connate without forming a mentum; the petals are oblong and tridentate; and the lip is elliptical and bicrested.



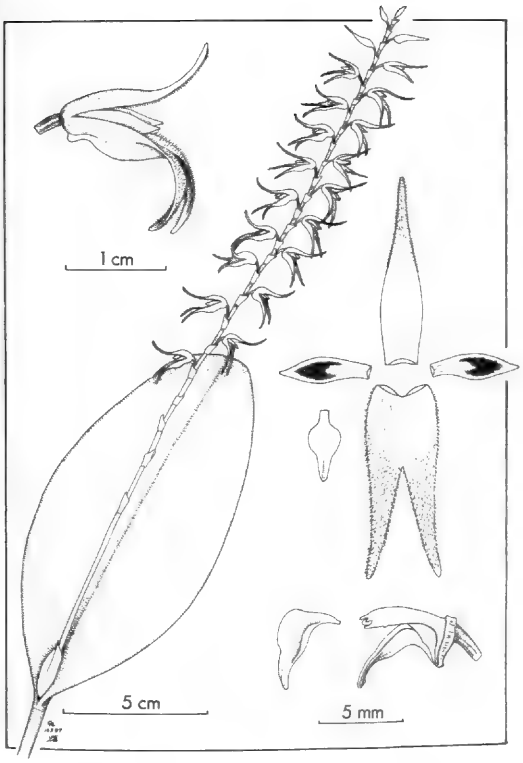


Fig. 1. Effusiella hamiltonii

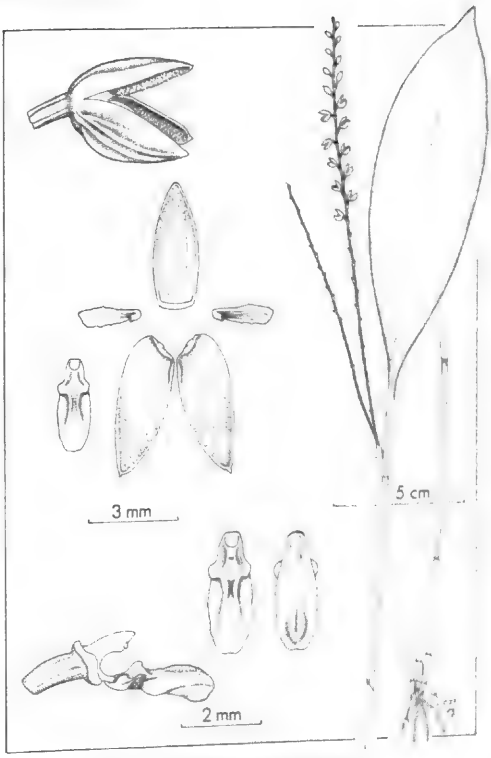


Fig. 2. Effusiella skolnickiae

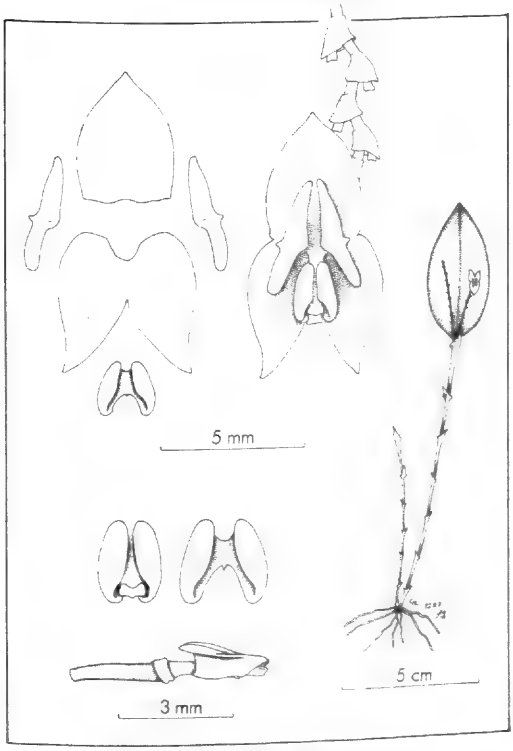


Fig. 3. Lepanthes cuatrecasasii

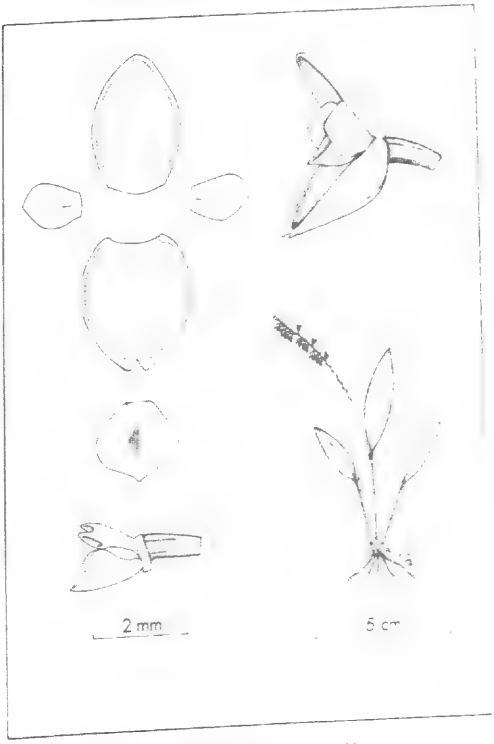


Fig. 4. Pleurothallis davisii

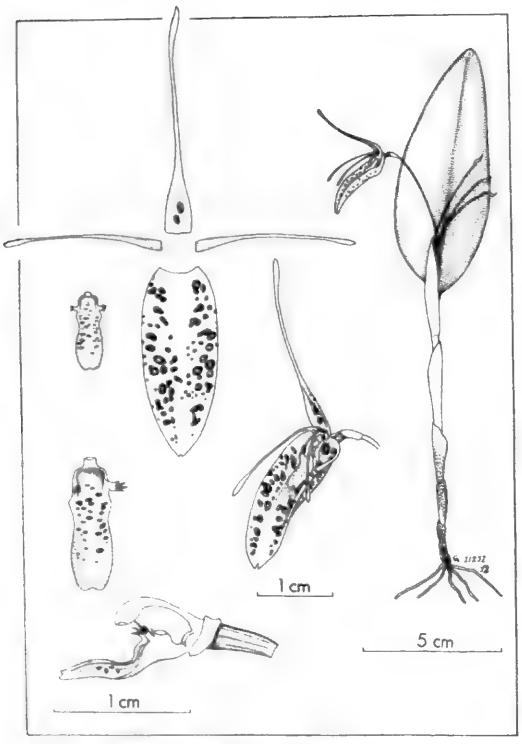


Fig. 5. Restrepia fritillina

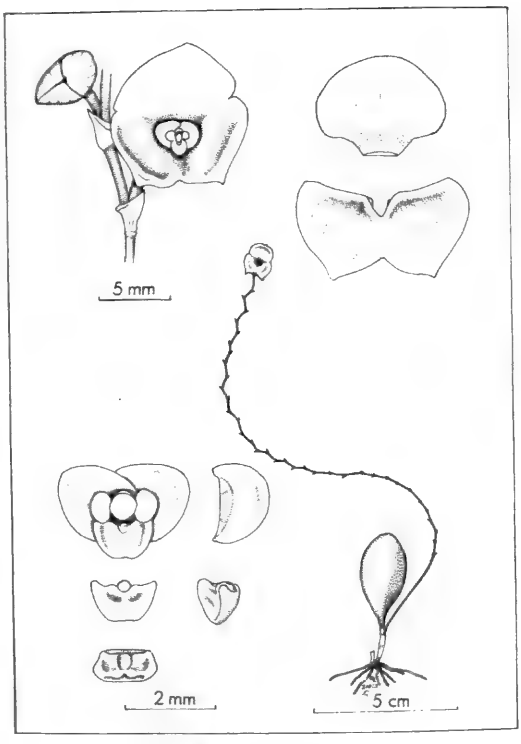


Fig. 6. Stelis maduroi

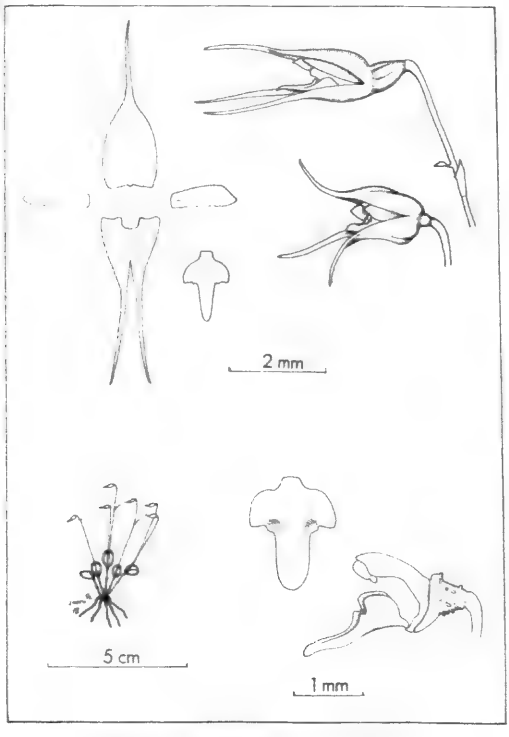


Fig. 7. Trichosalpinx sipapoensis

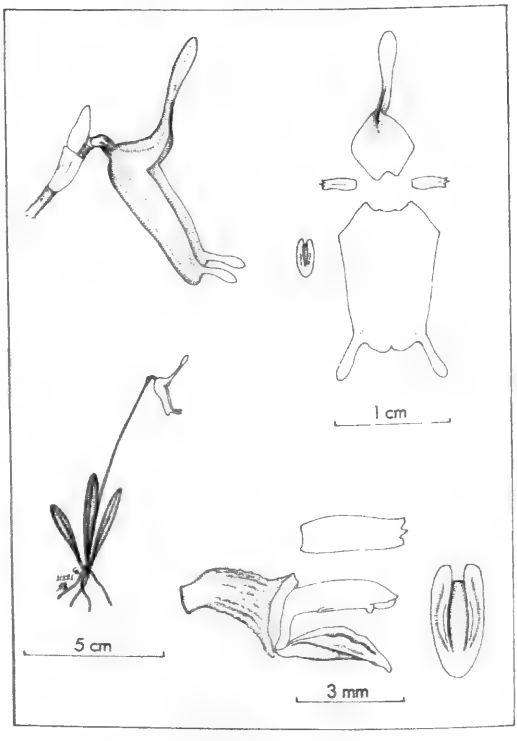


Fig. 8. Trisetella klingeri

3. Additions to the *Lepanthes* of Ecuador

These three new species bring the total number of species known today from Ecuador to 329. Five unnumbered species have been described since number 321 was described in *Icones XXIV* in 2002, one in *Icones XXVI* and four in *Icones XXVI*.

Lepanthes dicycla Luer & Hirtz, sp. nov. Fig. 327

Ety.: From the Greek *dikyklos,* "two circles," referring to the upper lobes of the petals.

Planta parva mediocrisve, racemis congestis foliis ellipticis brevioribus sepalis ovatis acutis, petalis transverse bilobis, lobis superioribus circularibus, lobis inferioribus minoribus triangularibus, laminis labelli ovatis, appendice pubescenti.

Plant small to medium in size; roots slender. Ramicauls erect, 5-7 cm long, enclosed by 7-8 lepanthiform sheaths with minutely ciliate ribs and margins. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 30-33 mm long including a petiole 2-3 mm long, 14-16 mm wide, the base cuneate into the petiole. **Inflorescence** a congested, successively several-flowered raceme up to 20 mm or more long, including a filiform peduncle 6-10 mm long, borne either along the back of the leaf, or on the dorsum; floral bracts 1.5 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** yellow, carinate, entire, the dorsal sepal ovate, acute, 4 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for less than 1 mm, the lateral sepals ovate, oblique, acute, 3.5 mm long, 2 mm wide, 2-veined, connate 1.5 mm; **petals** orange, red at the base, glabrous, transversely biobed, 1 mm long at the base, 3 mm wide, the upper lobe circular, 2 mm long, 2 mm wide, the lower lobe triangular, obtuse, 1.5 mm long, 1 mm wide; **lip** red, glabrous (cellular at most), bilaminate, the blades ovate, acute at the apex, round at the base, 1.5 mm long, the connectives broadly cuneate, the body broad, connate to the base of the column, the sinus deeply rounded with a small, ovate, pubescent appendix; **column** terete, 2 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Morona-Santiago**: Chiguinda, alt. 1000 m, collected and cultivated by Ecuagenera, Guaiaceo, flowered in cultivation 27 July 2004, *A. Hirtz 8946* (Holotype: MO), C. Luer illustr. 21226.

This species is readily distinguished by the pair of proportionately large, round upper lobes of the petals that overlap before the dorsal sepal. Otherwise, the species with congested racemes shorter than an elliptical leaf; small, ovate sepals; ovate blades of the lip; and a pubescent appendix is not remarkable.

Lepanthes dicycla is similar to *L. ornithocephala* L.Jost & Luer, but differs in having obtuse, non-acuminate leaves, semiconnate lateral sepals instead of connate to the tips, circular upper lobes of the petals much larger than the lower lobes, and ovate blades of the lip.

Lepanthes gossamera Luer & Hirtz, sp. nov. Fig. 328

Ety.: From the Middle English *gossamer,* "cobweb," referring to the fine sepaline tails.

Planta perparva, racemo paucifloro foliis ellipticis multilongiore, sepalis acutis in caudas filamentosas accuminatis, lobis petalorum attenuatis, laminis labelli integris alaformibus, appendice lobulo minuto distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 6-8 mm long, enclosed by 2 microscopically ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, acute, apiculate, 8-11 mm long, 4-5 mm wide, contracted below into a petiole 1.5 mm long. **Inflorescence** a congested, distichous, successively few-flowered raceme, 2-3 mm long, borne by a filiform peduncle 20-25 mm long; floral bract 1 mm long; pedicel 1-2 mm long; ovary 1 mm long, smooth; **sepals** rose, membranous, glabrous, ovate, acute, long-acuminate into hairlike tails, carinate, the dorsal sepal 9 mm long, 2 mm wide, incompletely 3-veined, barely connate basally, the lateral sepals connate 1.5 mm, oblique, 10 mm long, 2 mm wide, incompletely 2-veined; **petals** purple, membranous, glabrous, transversely bilobed, veins not visible, the upper lobe narrowly triangular, attenuate, 4 mm long, 1 mm wide at the base, the lower lobe subsigmoid, 3.5 mm long, 0.75 mm wide at the base; **lip** purple, glabrous, bilaminate, the laminae obliquely triangular with broadly rounded angles, 1.25 mm long, 1.25 mm wide, flanking the column, connate into a body 0.5 mm broad without connectives, connate to the base of the column, the sinus obtuse, with the appendix a minute lobule; **column** short, 0.75 mm long, the anther and uniloculate stigma apical.

ECUADOR: **Morona-Santiago**: between Guamote and Macas, alt. 2700 m, 14 Oct. 2004, *A. Hirtz et al. 9111* (Holotype: MO), C. Luer illustr 21223.

With similar, equally gossamer-like sepaline tails, this minute species is most similar to *Lepanthes filamentosa* Luer & Hirtz. *Lepanthes gossamera* is distinguished by subdued petals with the dorsal lobe narrowly triangular and the lower lobe opposite and sigmoid. The blades of the lip are triangular with broadly rounded corners, and connate beneath the column into a body with a minute lobe for an appendix.

Lepanthes sucumbiensis Luer & Hirtz, sp. nov. Fig. 329

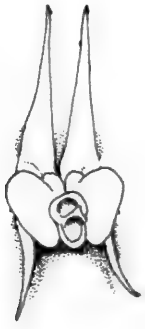
Ety.: Named for the province of Sucumbío where the species was collected.

Planta parva, racemo congesto folio ovato reticulato breviore, sepalis ovatis acutis microscopice denticularis, sepalis lateralibus fere liberis, petalis transverse bilobatis, lobis plus minusve obtuse triangularibus minute pubescentibus, laminis labelli anguste ovatis glabris et appendice pubescentibus.

Plant small, epiphytic, caespitose; roots slender. Ramicauls stout, suberect to erect, 3-6 cm long, enclosed by 8-9 ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, ovate, acute, minutely reticulate, 20-30 mm long, 14-18 mm wide, the base rounded, abruptly contracted into a petiole 1.5 mm long. **Inflorescence** a congested, distichous, successively few-flowered raceme, 5-8 mm long, borne by a filiform peduncle 5-8 mm long, along the back of the leaf; floral bract 1 mm long; pedicel 1 mm long; ovary 1.5 mm long, smooth; **sepals** yellow, suffused with purple centrally, ovate, acute, microscopically denticulate, carinate, the dorsal sepal 2.6 mm long, 1.6 mm wide, connate basally, the lateral sepals connate 0.3 mm, oblique, 2.75 mm long, 1.5 mm wide; **petals** orange, minutely pubescent, transversely bilobed, with a small marginal angle between the two, 1 mm long, 2.2 mm wide, the upper lobe triangular, 1.3 mm long, 1 mm wide, with rounded angles, the lower lobes oblong, 1 mm long, 0.5 mm wide, rounded at the tip; **lip** bilaminate, glabrous, orange with red margins, the laminae narrowly ovate, oblique, the connectives broadly cuneate, short, the body narrow, connate to the base of the column, the sinus deep, with a narrowly rounded, a bisegmented, pubescent appendix; **column** stout, 0.5 mm long, the anther apical, the stigmic lobe ventral.

ECUADOR: **Sucumbíos**: between La Bonita and Lago Agrio, alt. 1200 m, 14 Sept. 2004, *A. Hirtz et al. 9029* (Holotype: MO), C. Luer illustr. 21228.

This small species is without a single, distinctive feature, but it is distinguished by relatively stout ramicauls and ovate, minutely reticulated leaves. The flowers are borne behind the leaf in a short, successively flowered raceme. The sepals are acute, with the laterals mostly free; a small marginal angle separates the lobes of the petals; the blades of the lip are narrowly ovate with a broad, short connective; and the pubescent appendix protrudes from the cleft body.



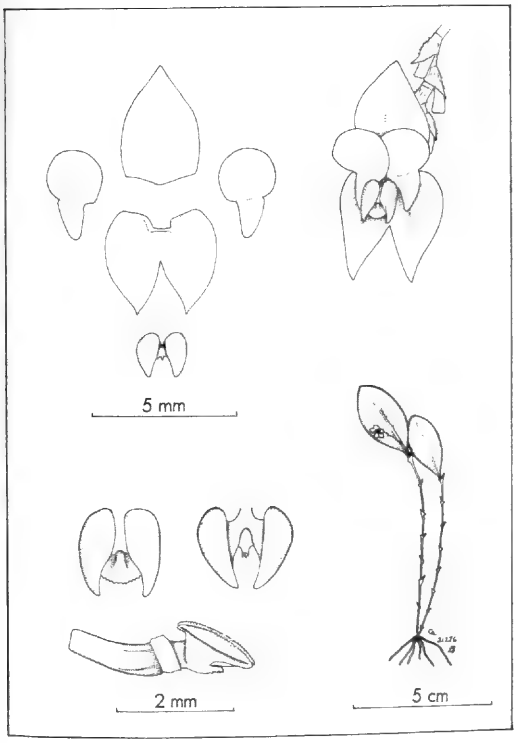


Fig. 327. Lepanthes dicycla

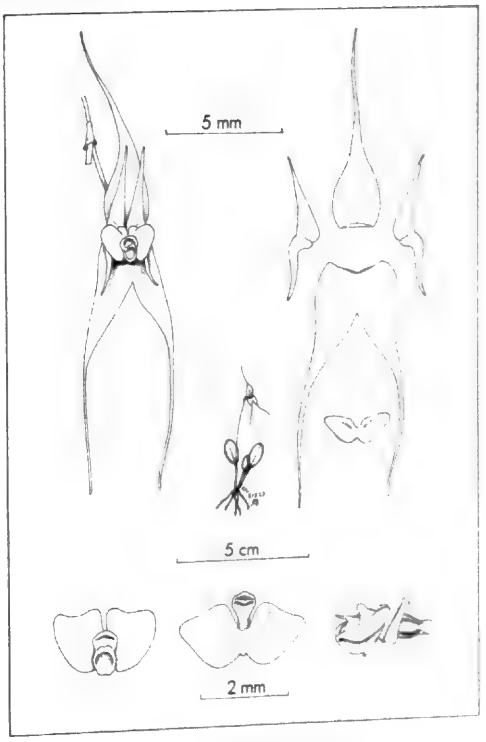


Fig. 328. Lepanthes gossamera

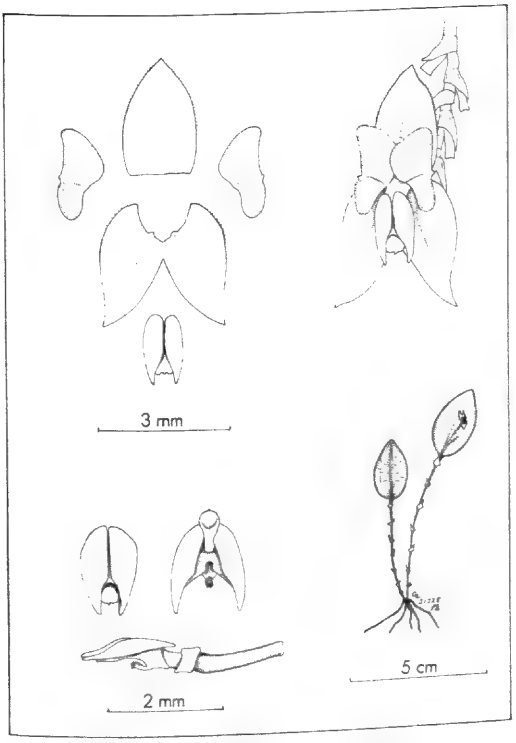


Fig. 329. Lepanthes sucumbiensis

4. New Combinations

Acianthera angustifolia (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis angustifolia* Lindl., Edwards's Bot. Reg. 21: sub. t.1797, 1836.
Syn.: *Pleurothallis wilsonii* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 326, 1858.
Acianthera insularis (Hoehne & Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis insularis* Hoehne & Schltr., Arq. Bot. Estado São Paulo 1(3): 217, 1926.
Acianthera macuconensis (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis macuconensis* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 17, 1882.
Acianthera spilantha (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis spilantha* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 32, 1882.

Corrections in *Acinopetala*:
Acinopetala laucheana (Fraser) Luer, comb. nov.
Bas.: *Masdevallia laucheana* Fraser, Gard. World 11: 134, 1894.
Acinopetala livingstoneana (Rchb.f. & Roezl) Luer, comb. nov.
Bas.: *Masdevallia llivingstoneana* Rchb.f. & Roezl, Gard. Chron. n.s. 2: 322, 1874.

Alaticaulia andresiana (Luer & Maduro) Luer, comb. nov.
Bas.: *Masdevallia andresiana* Luer & Maduro, Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 103: 283, 2005.
Alaticaulia barrowii (Luer) Luer, comb. nov.
Bas.: *Masdevallia barrowii* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 87: Add. 33a, 2002.
Alaticaulia cheloglossa (Luer & Dalström) Luer, comb. nov.
Bas.: *Masdevallia cheloglossa* Luer & Dalström, Selbyana 27(1): 15, 2006.
Alaticaulia cupularis (Rchb.f.) Luer, comb. nov.
Bas.: *Masdevallia cupularis* Rchb.f., Beitr. Orchid. C.-Amer. 93, 1866.
Alaticaulia listroglossa (Luer & Dalström) Luer, comb. nov.
Bas.: *Masdevallia listroglossa* Luer & Dalström, Selbyana 27(1): 17, 2006.
Alaticaulia maduroi (Luer) Luer, comb. nov.
Bas.: *Masdevallia maduroi* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 72: 110, 1998.
Alaticaulia thienii (Dodson) Luer, comb. nov.
Bas.: *Masdevallia thienii* Dodson, Selbyana 2(1): 54, 1977.
Alaticaulia zumbuehlerae (Luer) Luer, comb. nov.
Bas.: *Masdevallia zumbuehlerae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 87: addendum 263a, 2002.

Anathallis aristulata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis aristulata* Lindl., Fol. Orchid. *Pleurothallis* 41, 1859.
Anathallis bleyensis (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis bleyensis* Pabst, An. XIV Congr. Soc. Bot. Bras. 13, 1964.
Anathallis carvalhoi (Luer & Toscano) Luer, comb. nov.
Bas.: *Pleurothallis carvalhoi* Luer & Toscano, Selbyana 23(2): 183, 2002.
Anathallis crebrifolia (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes crebrifolia* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 67, 1882.
Anathallis graveolens (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis graveolens* Pabst, Bradea 1(50): 488, 1975.
Anathallis guarujaensis (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis guarujaensis* Hoehne, Arq. Bot. Estado São Paulo 1(1): 15, 1938.
Anathallis imbricata (Barb.Rodr.) Luer, comb. nov.
Basionym: *Pleurothallis imbricata* Barb.Rodr., Gen. Sp. Orchid. Nov. 1: 15, 1877.
Anathallis lichenophila (Porto & Brade) Luer, comb. nov.
Bas.: *Pleurothallis lichenophila* Porto & Brade, Arquiv. Inst. Veg. Rio de Janeiro 1: 221, 1935.
Anathallis microphyta (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes microphyta* Barb. Rodr., Gen. Sp. Orch. Nov. 2: 67, 1882.
Anathallis reedii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis reedii* Luer, Selbyana 23(2): 186, 2002.
Anathallis sororcula (Schltr.) Luer, comb. nov.
Pleurothallis sororcula Schltr., Anex. Mem. Inst. Butantan 1(4): 46, 1922.
Anathallis subnulla (Luer & Toscano) Luer, comb. nov.
Bas.: *Pleurothallis subnulla* Luer & Toscano, Selbyana 23(2): 190, 2002.

Echinosepala shuarii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis shuarii* Luer, Selbyana 7(1): 122, 1982.
Echinosepala vittata (Pupulin & M.A.Blanco) Luer, comb. nov.
Bas.: *Myoxanthus vittatus* Pupulin & M.A.Blanco, Lankesteriana 2: 16, 2001.

Pabstiella alligatorifera (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis alligatorifera* Rchb.f., Hamburger Garten- Blumenzeitung 21: 299, 1865.
Pabstiella arcuata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis arcuata* Lindl., Fol. Orchid. *PLeurothallis* 34, 1859.
Pabstiella avenacea (Ames) Luer, comb. nov.
Bas.: *Pleurothallis avenacea* Ames, Orchidaceae 2: 266, 1908.
Pabstiella aveniformis (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis aveniformis* Hoehne, Arq. Bot. Estado São Paulo 2(5): 106, 1950.
Pabstiella bacillaris (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis bacillaris* Pabst, Arch. Jard. Bot, Rio de Janeiro 14: 7, 1956.
Pabstiella bowmannii (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis bowmannii* Rchb.f., Gard. Chron. 989, 1869.
Pabstiella bradei (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis bradei* Schltr., Anexos Mem. Inst. Butantan, Secc. Bot. 1(4): 41, 1922.
Pabstiella calcarata (Cogn.) Luer, comb. nov.
Bas.: *Pleurothallis calcarata* Cogn., Bull. Soc. Roy. Bot. Belg. 43: 311, 1907.
Pabstiella campestris (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis campestris* Barb.Rodr., Gen. Sp. Orchid. Nov. 1: 8, 1877.
Pabstiella carinifera (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes carinifera* Barb.Rodr., Rev. de Engenh. 3: 110, 1881.
Pabstiella carrisii (Brade) Luer, comb. nov.
Bas.: *Pleurothallis carrisii* Brade, Arch. Jard. Bot. Rio de Janeiro 11: 75, 1951.
Pabstiella castellensis (Brade) Luer, comb. nov.
Bas.: *Pleurothallis castellensis* Brade, Arch. Jard. Bot. Rio de Janeiro 9: 9, 1949.
Pabstiella conspersa (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis conspersa* Hoehne, Arch. Inst. Biol. São Paulo 3: 294, 1930.
Pabstiella cordilabia (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis cordilabia* Pabst, Bradea 1(24): 267, 1972.
Pabstiella crassicaulis (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes crassicaulis* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 60, 1882.
Pabstiella crenata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis crenata* Lindl., Gard. Chron. 6(13): 207, 1846.
Pabstiella crinita (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis crinita* Barb.Rodr., Gen. Sp. Orchid. Nov. 1: 16, 1877.
Pabstiella curtii-bradei (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis curtii-bradei* Pabst, Arch. Jard. Bot. Rio de Janeiro 14: 10, 1956.
Replaced name for *Pleurothallis microcharis* Schltr. ex Hoehne, 1936, not Schltr. 1921.
Pabstiella dutrai (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis dutrai* Pabst, Bradea 1(36): 362, 1973.
Pabstiella elegantula (Cogn.) Luer, comb. nov.
Bas.: *Pleurothallis elegantula* Cogn., Bull. Soc. Roy. Bot. Belg. 43: 308, 1906, not 1909.
Pabstiella ephemera (Lindl.) Luer, comb.nov.
Bas.: *Pleurothallis ephemera* Lindl., Companion Bot. Mag. 2(24): 356, 1836.
Pabstiella ezechiasi (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis ezechiasi* Hoehne, Arq. Bot. Estado São Paulo 2: 21, 1946.
Pabstiella fasciata (Seehawer) Luer, comb. nov.
Bas.: *Pleurothallis fasciata* Seehawer, Die Orchidee 56(4): 458, 2005.
Pabstiella filiformis (Cogn.) Luer, comb. nov.
Bas.: *Pleurothallis filiformis* Cogn., Fl. Bras. (Martius) 3(4): 453, 1896.
Pabstiella fluminensis (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis fluminensis* Pabst, Bradea 1(36): 363, 1973.
Pabstiella garayi (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis garayi* Pabst, Bradea 1(36): 364, 1973.
Pabstiella ghillanyi (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis ghillanyi* Pabst, Anais 15 Congr. Soc. Bot. Brasil 111, 1967.
Pabstiella gomesii-ferreirae (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis gomesii-ferreirae* Pabst, Bradea 2(10): 53, 1975.
Pabstiella gonzalezii (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis gonzalezii* Pabst, Bradea 2(10): 53, 1975.

Pabstiella gracilicaulis (Seehawer) Luer, comb. nov.
Bas.: *Pleurothallis gracilicaulis* Seehawer, Die Orchidee, 56(4): 461, 2005.
Pabstiella hians (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis hians* Lindl., Edwards's Bot. Reg. 21: sub t. 1797, 1836.
Pabstiella hypnicola (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis hypnicola* Lindl., Edwards's Bot. Reg. 28: Misc. 75, 1842.
Pabstiella hymenantha (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis hymenantha* Lindl., Edwards's Bot. Reg. 21: sub t. 1797, 1836.
Pabstiella leptotifolia (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes leptotifolia* Barb.Rodr., Gen. Sp. Orchid. Nov. 1: 15, 1877.
Pabstiella leucopyramis (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis leucopyramis* Rchb.f., Linnaea 41: 47, 1876.
Pabstiella lineolata (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes lineolata* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 53, 1882.
Pabstiella lingua (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis lingua* Lindl., Edwards's Bot. Reg. 28: Misc. 80, 1842.
Pabstiella matinhensis (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis matinhensis* Hoehne, Arq. Bot. Estado São Paulo, n.s. 1, fasc. 1: 13, 1938.
Pabstiella miniato-lineolata (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis miniato-lineolata* Hoehne, Arq. Bot. Estado São Paulo 1: 15, 1938.
Pabstiella miragliae (Leite) Luer, comb. nov.
Bas.: *Pleurothallis miragliae* Leite, Arq. Bot. Estado São Paulo 2: 93, 1947.
Pabstiella mouraeoides (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis mouraeoides* Hoehne, Arq. Bot. Estado São Paulo, n.s. 1(1): 13, 1938.
Pabstiella pauloënsis (Hoehne & Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis pauloënsis* Hoehne & Schltr., Arq. Bot. Estado São Paulo 1(3): 219, 1926.
Pabstiella pleurothalloides (Cogn.) Luer, comb. nov.
Bas.: *Restrepia pleurothalloides* Cogn., Fl. Bras. (Martius) 3(6): 566, 1906.
Pabstiella podoglossa (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis podoglossa* Hoehne, Arq. Bot. Estado São Paulo 1: 12, 1938.
Pabstiella pristeoglossa (Rchb.f. & Warm.) Luer, comb. nov.
Bas.: *Pleurothallis pristeoglossa* Rchb.f. & Warm., Otia Bot. Hamburg. 92, 1881.
Pabstiella punctatifolia (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis punctatifolia* (Barb.Rodr.) Pabst, Orquidea 28: 227, 1966.
Pabstiella quadridentata (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes quadridentata* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 50, 1882.
Pabstiella robertoi (Luer & Toscano) Luer, comb. nov.
Bas.: *Pleurothallis robertoi* Luer & Toscano, Selbyana 23(2): 186, 2002.
Pabstiella rostriflora (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis rostriflora* Rchb.f., Linnaea 22: 827, 1849.
Pabstiella rubrolineata (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis rubrolineata* Hoehne, Bol. Agric. São Paulo 34: 609, 1934.
Pabstiella ruschii (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis ruschii* Hoehne, Arq. Bot. Estado São Paulo 1(2): 44, 1939.
Pabstiella sarcopetala (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes sarcopetala* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 46, 1882.
Pabstiella sordida (Kraenzl.) Luer, comb. nov.
Bas.: *Pleurothallis sordida* Kraenzl., Ark. Bot. 16(8): 8, 1921.
Pabstiella sparsiflora (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis sparsiflora* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 35: 59, 1925.
Pabstiella spathuliglossa (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis spathuliglossa* Hoehne, Arq. Bot. Estado São Paulo 1(1): 12, 1938.
Pabstiella tabacina (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes tabacina* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 47, 1882.
Pabstiella tenera (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes tenera* Barb.Rodr., Gen. Spec. Orchid. Nov. 2: 51. 1882.
Pabstiella transparens (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis transparens* Schltr., Anexos Mem. Inst. Butantan, Secc. Bot. 1(4): 44, 1922.
Pabstiella tricolor (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes tricolor* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 52, 1882.
Pabstiella trifida (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis trifida* Lindl., Edwards's Bot. Reg. 28: Misc. 82, 1842.
Pabstiella trimeropetala (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis trimeropetala* Pabst, Arch. Jard. Bot. Rio de Janeiro 14: 20, 1956.

Pabstiella truncicola (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis truncicola* Rchb.f., Bot. Ergeb. Maxim. Reise 149, 1866.
Pabstiella uniflora (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis uniflora* Lindl., Companion Bot. Mag. 2(24): 355, 1836.
Pabstiella variegata (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis variegata* Barb.Rodr., Gen. Sp. Orchid. Nov. 1: 10, 1877.
Effusiella vellozoana (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis vellozoana* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 35: 61, 1925.
Pabstiella verboonenii (Luer & Toscano) Luer, comb. nov.
Bas.: *Pleurothallis verboonenii* Luer & Toscano, Selbyana 23(2): 194, 2002.
Pabstiella versicolor (Porsch) Luer, comb. nov.
Bas.: *Pleurothallis versicolor* Porsch, Oesterr. Bot. Z. 55. 155, 1905.
Pabstiella wacketii (Handro & Pabst) Luer, comb. nov.
Bas.: **Pleurothallis wacketii** Handro & Pabst, Bradea 1(7): 46, 1971.

Reichantha tokachiorum (Luer) Luer, comb. nov.
Bas.: *Masdevallia tokachiorum* Luer, Lindleyana 6(2): 90, 1991.

Rhynchopera cobanensis (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis cobanensis* Schltr., Repert. Spec. Nov. Regni Veg. 11(271-272): 42, 1912.
Rhynchopera oblongifolia (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis oblongifolia* Lindl., Companion Bot. Mag. 2(24): 355, 1836.

Specklinia muscoidea (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis muscoidea* Lindl., Edwards's Bot. Reg. 24: Misc. 89, 1838.

Due to an oversight, the following four combinations had been made without the basionym.
Teagueia phasmida (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Platystele phasmida* Luer & R.Escobar, Orquideología 16(3): 42, 1986.
Teagueia rex (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Platystele rex* Luer & R.Escobar, Orquideología 15(2-3): 140, 1982.
Teagueia teaguei (Luer) Luer, comb. nov.
Bas.: *Platystele teaguei* Luer, Selbyana 5(2): 157, 1979.
Teagueia zeus (Luer & Hirtz) Luer, comb. nov.
Bas.: *Platystele zeus* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 38: 131, 1990.

Tigivesta replaced name for *Vestigium* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 103: 309 (2005), because of previous use of *Vestigium* for a fungus.
Tigivesta abortiva (Luer) Luer, comb. nov.
Bas.: *Pleurothallis abortiva* Luer, Phytologia 47(2): 72, 1980.

ACKNOWLEDGMENTS

I thank Stig Dalström for the inking of most of the illustrations, and the generosity of the Pleurothallid Alliance that has made his inking possible. For invaluable access to collections, I particularly thank the herbaria of AMES, BR, G, HB, K, RB, SP, US and W. For time-consuming proofreading, I owe many thanks to Victoria Hollowell, Mary Jane Hotaling, and Lisa Thoerle.

5. New species and a new combination in *Masdevallia* and affiliates

ADDENDA TO *SYSTEMATICS OF MASDEVALLIA*

To retain the continuity of the *Systematics of Masdevallia*, new species referable to the allied genera will be treated in the same format, so that the pages may be removed and added to their respective volumes. The pages are numbered to indicate places for insertion, i.e., 165a. to precede 165.

Seven species were added in the preceding Icones, bringing the total of numbered illustrations to 681. Unfortunately, the ten new species described in Icones-20, were not illustrated in the full page format. The following numbers are belatedly assigned to them. The numbers assigned to the four following species indicate the present number of species treated in *Masdevallia* and affiliates.

From Icones Pleurothallidinarum XX:

Plate 682. for Fig. 1. Masdevallia burianii
Plate 683. for Fig. 2. Masdevallia calosiphon
Plate 684. for Fig. 3. Masdevallia formosa
Plate 685. for Fig. 4. Masdevallia immensa
Plate 686. for Fig. 5. Masdevallia juan-albertoi
Plate 687. for Fig. 6. Masdevallia kareniae
Plate 688. for Fig. 7. Masdevallia mariziae
Plate 689. for Fig. 8. Masdevallia nikoleana
Plate 690. for Fig. 9. Alaticaulia prolixa
Plate 691. for Fig. 10. Alaticaulia venus

For Icones Pleurothallidinarum XXIX:

Plate 692. Alaticaulia inamoena
Plate 693. Alaticaulia neukermansii
Plate 694. Alaticaulia rojohnii
Plate 695. Spilotantha nigricans

Alaticaulia inamoena Luer & Sijm, sp. nov.

Ety.: From the Latin *inamoenus*, "not beautiful," for obvious reasons.

Inter species *Alaticauliae* planta parva, pedunculo latissimo folio leviter breviore, racemo breviato, floribus semiclausis, sepalis caudisque brevibus crassisimis, petalis oblongis, labello tenui late oblongo, lobo antico calloso minute spiculati, plicae submarginalibus.

Plant small, epiphytic, caespitose; roots fleshy. Ramicauls erect, stout, 2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, obovate, obtuse, 8.5 cm long, 2.3 cm wide, narrowly cuneate below into the base. **Inflorescence** a stout, erect, triquetrous peduncle 8 cm long, bearing a congested, successively flowered raceme, with a bract just above the base, from the base of a ramicaul; floral bracts conduplicate, imbricating, 10 mm long; pedicel 10 mm long; ovary thick, 3 mm long; **sepals** thickly fleshy, subcarinate, glabrous externally, microscopically subpapillose within, the dorsal sepal oblong, contracted into a thick, terte tail ca. 7 mm long, 1.25 mm thick, the blade ca. 7 mm long, 3 mm wide, faintly 3-veined, connate to the lateral sepals for 4 mm to form a cuneate tube, the lateral sepals connate 8 mm into a rigidly concave synsepal, 6 mm wide unexpanded, each oblong-oblique, ca. 13 mm long including thick, 5 mm long tails similar to that of the dorsal sepal; **petals** cartilaginous, oblong, 5 mm long, 1.75 mm wide, the apex obtuse, with the midvein terminating with a nodule externally minutely, the labellar half with a low, longitudinal callus; **lip** thin, elliptical-oblong, 4.5 mm long, 3 mm wide, with oblique, suberect, submarginal folds near the middle, the epichile broad, 3 mm long, with a minutely spiculate, minutely erose, apical lobe less than 1 mm long and wide, the hypochile oblong, 3 mm long and wide, shallowly concave, smooth, hinged on the end; **column** semiterete, 4.5 mm long, the foot 1.5 mm long including a short, incurved extension.

ECUADOR: without collection data, cultivated in the Netherlands by *T. Sijm 261206* (Holotype: MO), C. Luer illustr. 21051.

This species is known from only the original collection, which is without known locality. It is distinguished by a rather small habit with thick, cuneate leaves, and a shorter peduncle that is 4 mm thick toward the apex. Proportionately small flowers are borne successively in a congested raceme with broad, conduplicate bracts. The sepals are rigidly fleshy and terminated by short, thick, terete tails. The petals are oblong with an apical nodule. The broadly oblong lip is thin with the folds within the margins, and a minutely spiculate apical lobe in present on the epichile.

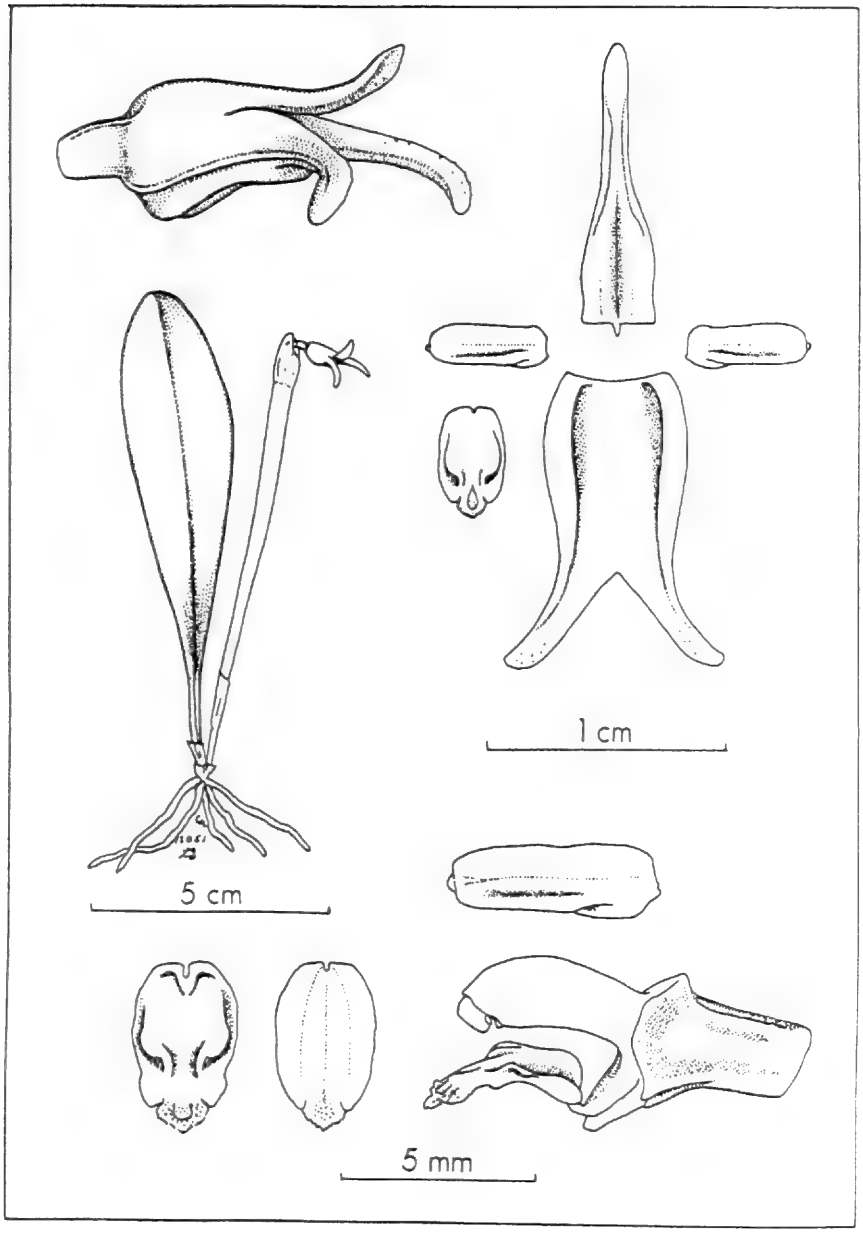


Plate 692. Alaticaulia inamoena

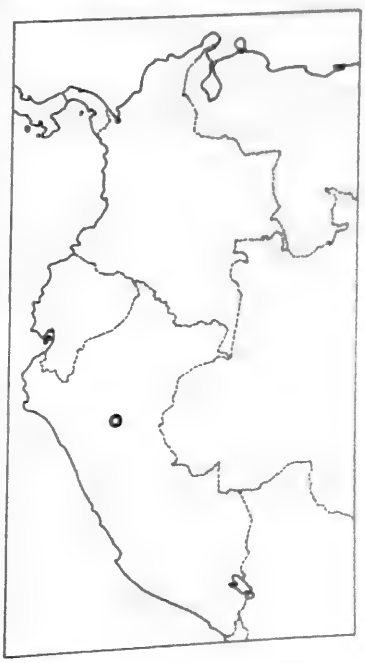
Alaticaulia neukermansii Luer & Sijm, sp. nov.

Ety.: Named for Rony Neukermans of Erembodegem, Belgium, who cultivates this species.

Inter species *Alaticauliae* planta parva, pedunculo quam folio breviore, sepalis intus minute papillosis in tubum latum connatis cum caudis crassis quam laminis brevioribus, petalis oblongis, labello oblongo marginibus eroso-undulatis, epichilio obtuso minute ruguso, hypochilio plano leviter concavo.

Plant small, epiphytic, caespitose; roots fleshy. Ramicauls erect, stout, 3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 9 cm long including the petiole 2-3 cm long, the blade elliptical, subacute, 1.6 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a slender, erect, subtriquetrous peduncle 6 cm long, bearing a successively flowered raceme, with a bract near the base, from the base of the ramicaul; floral bract tubular, 9 mm long; pedicel 8 mm long; ovary 3 mm long; **sepals** glabrous externally, minutely papillose within, the dorsal sepal obovate, obtuse, the blade 10 mm long, 6 mm wide, contracted into a stout, forwardly directed tail 9 mm long, 3-veined, connate to the lateral sepals for 7 mm to form a broad tube, the lateral sepals ovate, oblique, 12-13 mm long, connate 8 mm to form a lamina 16 mm wide expanded, each 3-veined, the apices obtuse, contracted into stout tails 7 mm long; **petals** cartilaginous, oblong, 6.5 mm long, 2 mm wide, the apex obtuse, minutely apiculate, the labellar half with a low, longitudinal callus; **lip** oblong, subpandurate, with irregular margins, the folds erect and erose, 7 mm long, 3 mm wide, the epichile 3 mm long, broadly rounded, minutely longitudinally rugose, the hypochile oblong, 4 mm long, shallowly concave, smooth, hinged beneath; **column** semiterete, 6 mm long, the foot 4 mm long including a short, incurved extension.

PERU: without collection data, obtained by Rony Neukermans, cultivated in the Netherlands by *T. Sijm 2701016* (Holotype: MO), C. Luer illustr. 21049.



This species is known from only the original collection, which is without known locality. It is distinguished by a rather small habit with the flower borne near the middle of the leaf by a slender peduncle that is not sharply triquetrous. The sepals are connate into a short, broad, cylindrical tube. The apices are obtuse and contracted into thick tails shorter than the blades. The petals are oblong and obtuse. The lip is oblong with erect, erose, oblique folds defining the rounded epichile and the oblong hypochile.

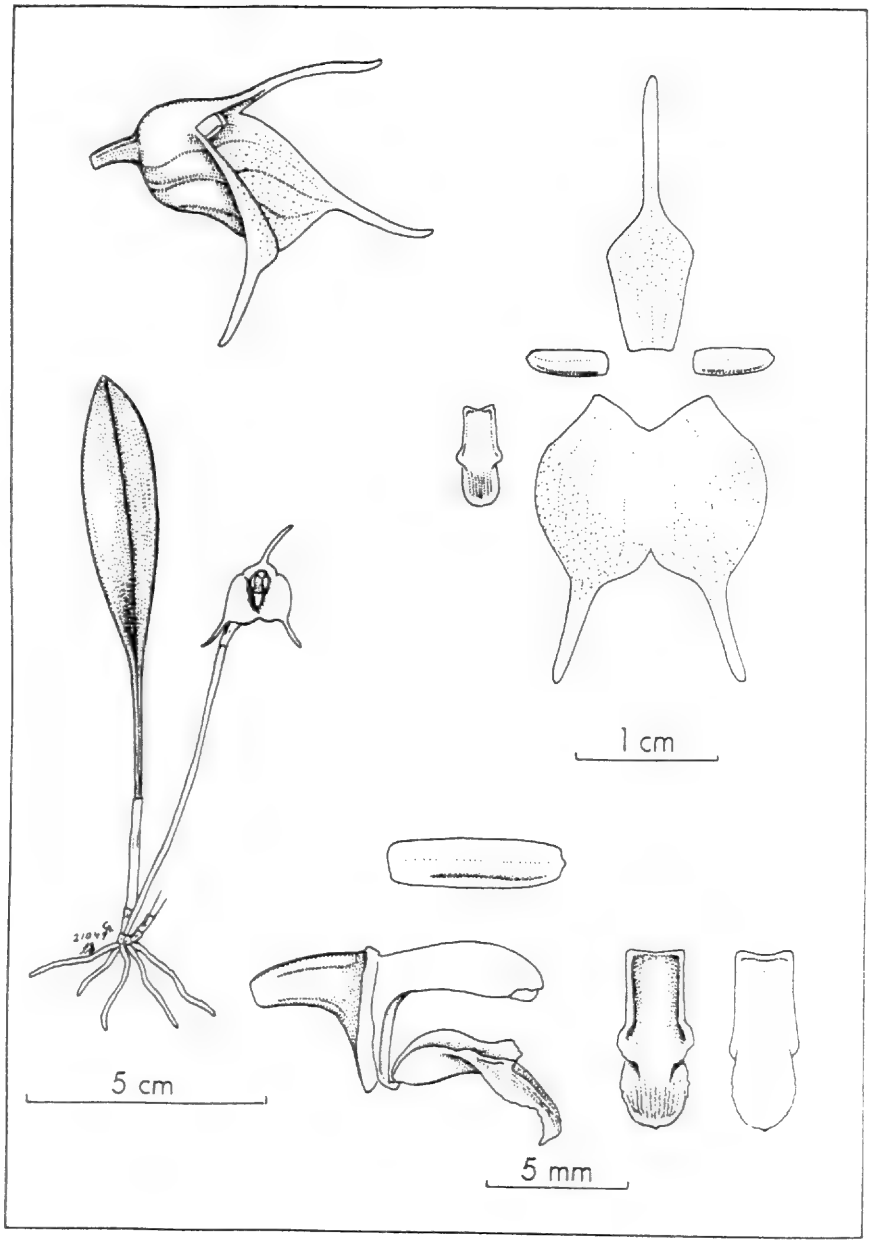


Plate 693. Alaticaulia neukermansii

Alaticaulia rojohnii Luer, sp. nov.

Ety.: Named for Claire Rojohn of Hales Corners, WI, who cultivates this species.

Species haec *Alaticauliae don-quijote* (Luer & Andreetta) Luer affinis, sed racemo remotifloro, sepalis non verrucosis, petalis oblongis labello longioribus, labelli hypochilo elliptico et epichilo late ovato tricalloso differt.

Plant medium in size, epiphytic, caespitose; roots fleshy. Ramicauls erect, stout, 2-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, 10-16 cm long including the petiole 2-2.5 cm long, the blade narrowly elliptical, subacute, 1.9 cm wide, narrowly cuneate below into an indistinct petiole ca. 2 cm long. **Inflorescence** a stout, erect, triquetrous peduncle 20 cm long, bearing a remotely and successively flowered raceme, the flowers 2.5-4 cm distant, with a bract near the base, from the base of the ramicaul; floral bracts tubular, 12-13 mm long; pedicels 15-25 mm long; ovary 5 mm long; **sepals** rose-colored, microscopically pubescent, subcarinate, the dorsal sepal narrowly triangular, acute, 2.5 cm long, 12 mm wide at the base, contracted into a slender, rosy white, forwardly directed tail 4.5 cm long, 3-veined, connate to the lateral sepals for 4 mm to form a shallow, expanded, sepaline cup, the lateral sepals ovate, oblique, with recurved sides, 6.5 cm long, connate 15 mm to form a deep recess beneath the lip, each 15 mm wide expanded, 3-veined, the apices acute, acuminate, contracted into slender tails; **petals** white, cartilaginous, oblong, 8.5 mm long, 2 mm wide, the apex subacute, shortly retuse, the labellar half longitudinally thickened with a carina along the margin; **lip** purple, pandurate with a constriction 2 mm from the apex, 6.5 mm long, 3.25 mm wide, the epichile 2 mm long, broadly ovate and recurved, with minutely irregular margins, and with 3 longitudinal calli extending forward from the hypochile, the hypochile elliptical, 4.5 mm long, 3.25 mm wide, shallowly concave, smooth, hinged beneath; **column** white, semiterete, 6.5 mm long, the foot 4 mm long including a slender, incurved extension.

PERU: **Amazonas**, near Pedro Ortiz toward Moyabamba, alt. 1600 m, collectted by Arcenio Barbosa, obtained in Gualaceo, Ecuador, Oct. 2005, flowered in cultivation in Hales Corners, Wisconsin, USA, June 2006, by *C. Rojohn s.n.* (Holotype: MO), C. Luer illustr. 21022; without collection data, purchased from Hartman Mendoza, Jr., *S. Dalström s.n.* (MO, QCNE), C. Luer illustr. 20946; same collection, flowered in cultivation in Wilmington, Delaware, USA, by *M. Rao 162* (MO).

This species is apparently rare and endemic in Amazonian Peru. Among all the species of the genus, it is most similar to *Alaticaulia don-quijote* (Luer & Andreetta) Luer, from southeastern Ecuador, but distinguished from it by the non-verrucose lateral sepals that are not markedly revolute. In both species the sepaline cup is very shallow and widely expanded, the long-tailed dorsal sepal is pointed forward, and the lateral sepals are long-acuminate into slender tails.

The petals of *Alaticaulia rojohnii* are oblong and considerably longer than the column and lip. The lip is deeply constricted between the middle and distal thirds, which separates an ovate, obtuse epichile from an elliptical hypochile. Three longitudinal calli extend forward from the hypochile, across the narrow isthmus, and onto the epichile.

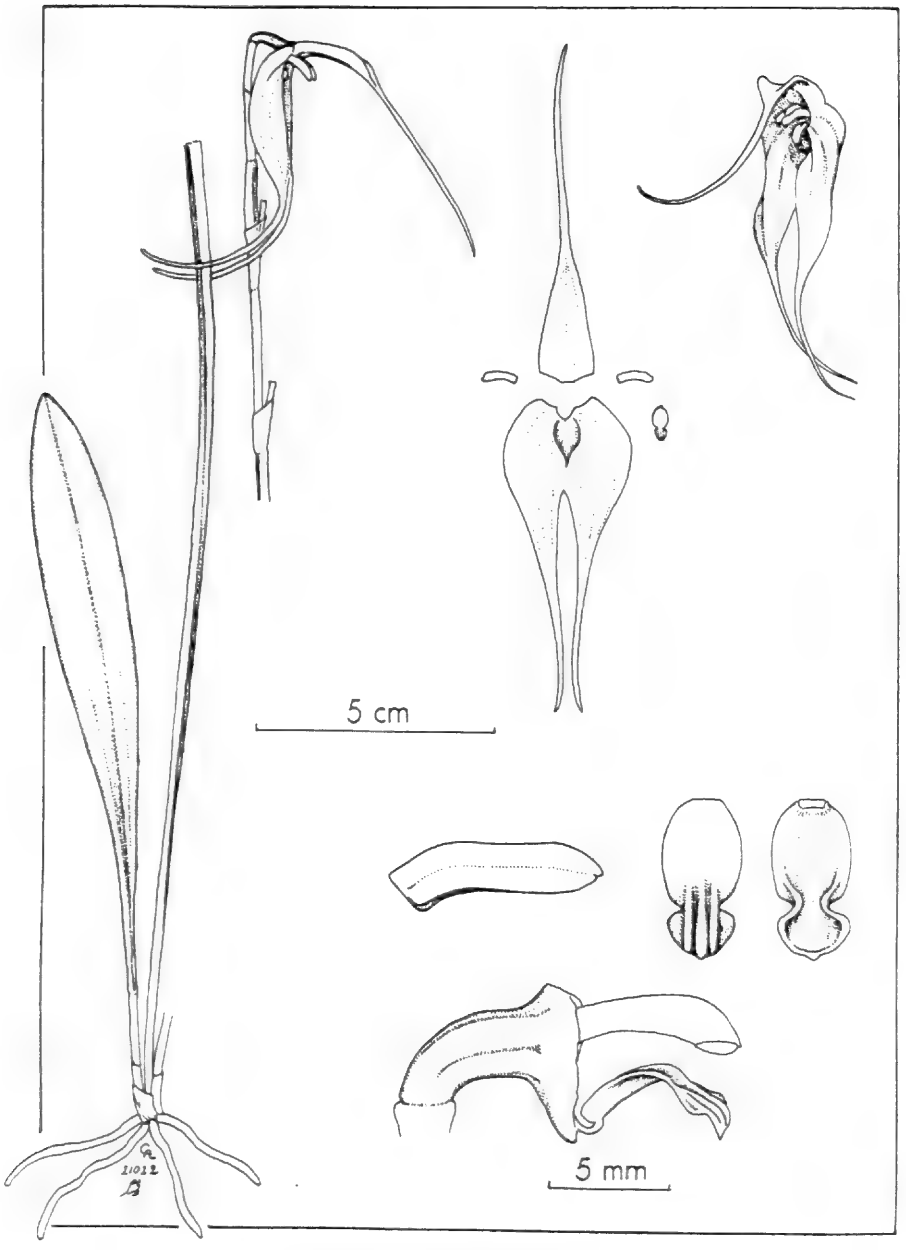


Plate 694. Alaticaulia rojohnii

Spilotantha nigricans (Königer & Sijm) Luer, comb. nov.

Bas.: *Masdevallia nigricans* Königer & Sijm, Arcula 12: 301, 2003.

Ety.: From the Latin *nigricans*, "becoming black," referring to the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, 0.8-1.2 cm long, enclosed by a tubular sheath and another sheath at the base. **Leaf** erect, coriaceous, elliptical, subacute, 2.5-4.5 cm long including the petiole ca. 1 cm long, 0.4-0.8 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, secund, simultaneously few-flowered raceme, ca. 5 cm long, and a peduncle 5-6.5 cm long, borne from low on the ramicaul; floral bracts oblique, 6-7 mm long; pedicels 5-6 mm long; ovary lamellate, 1.5 mm long, 1.5 mm wide; **sepals** diffusely suffused with purple-black, glabrous, deeply connate into an obpyriform, subarcuate tube, inflated in the distal two-thirds, contracted at the apex into an ostium ca. 1 mm long and 1 mm wide, the dorsal sepal scaphoid, concave, connate to the laterals for 5 mm, 6 mm long, 3 mm wide expanded, 3-veined, the midvein thick, contracted at the obtuse apex into a stout tail 2 mm long, the lateral sepals connate 4 mm into a concave synsepal, 5 mm long, 3,5 mm wide unexpanded, 3-veined with the mid-vein thickened, shortly concave basally to the column-foot, the apices in apposition, contracted into thick 2 mm tails similar to that of the dorsal sepal, all 3 tails connivent and surrounding the opening into the sepaline tube; **petals** narrowly linear-cuneate, with a low, longitudinal callus within the labellar margin, 1.75 mm long, 0.6 mm wide, 1-veined, the apex truncate-trilobed; **lip** oblong-trilobed, broadly obtuse, with the sides below the apical third broadly curved, erect the natural position, 2 mm long, 1 mm wide, 3-veined, with the anterior margins of the lobes callous, extending onto the subcircular, apical lobe as a pair of calli, and with a narrow, midline callus between them, the base truncate, hinged to the end of the column-foot; **column** terete, 1.5 mm long, with the anther apical and the stigma subapical.

ECUADOR: without collection data, obtained by and cultivated by A.P. Sijm in the Netherlands, flowered in cultivation, 2002, *W. Königer 114* (Holotype: M; Isotype: QCA); flowered in cultivation July 2006 by *A.P. Sijm s.n.* (MO), C. Luer illustr. 21036.

This small species of *Spilotantha* from somewhere in Ecuador has an inflated sepaline tube that appears similar to that of species of *Buccella*, but without the elongated column-foot; and an inflated sepaline similar to that of the comparatively huge *Masdevallia encephala* Luer & R.Escobar, also with a constricted orifice.

Similar to the other small species of *Spilotantha*, this species is characterized by a loose raceme of tubular flowers that far exceeds the tuft of small leaves. The sepals are deeply connate into a tube, as they are in ten other species of the genus, but in only one other,*S. delphina*, (Luer) Luer, is an inflated tube constricted into a small aperture. The sepaline tails of both and *S. nigricans* are short and thick, but the tails of the latter are connivent and not as thick. The petals of the two species are similar, but the lip of the latter has a small, longitudinal callus between the pair of calli that extend forward from the lateral lobes onto the middle lobe.

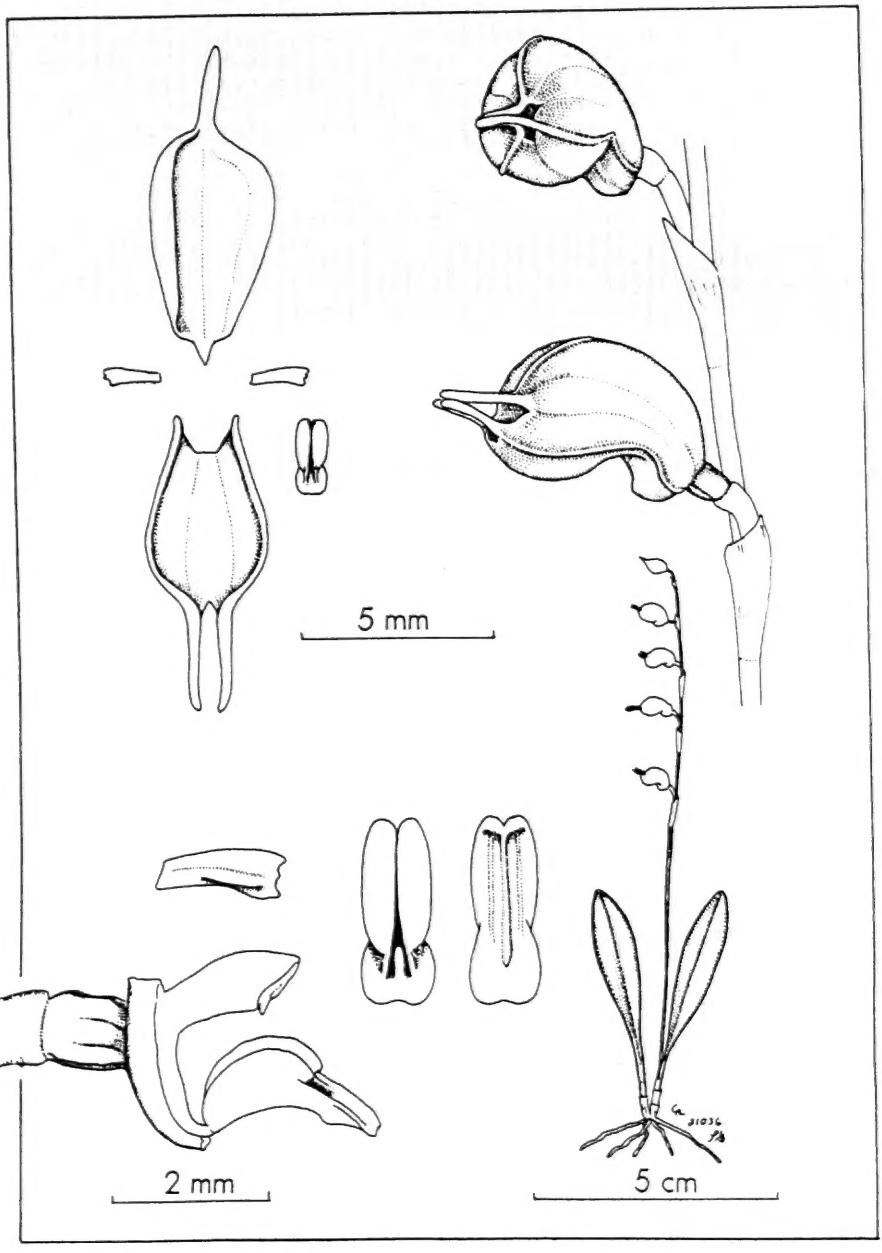


Plate 695. Spilotantha nigricans

Missouri Botanical Garden Library
3 1753 00346 9837

ISBN 1-930723-63-4